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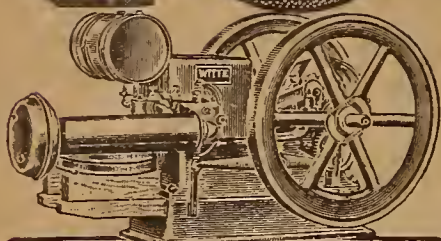
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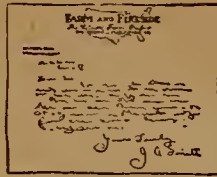
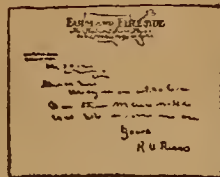
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The Editor's Letter

The Stories of Two Fathers and Two Sons



ONE of the saddest things about our Civil War was the division of families and the unfortunate circumstances by which brothers fought against brothers and fathers fought against their own sons. Men forget the ties of kinship when a keen sense of principle is involved. Unfortunately, even such a peaceful innovation as new methods of farming has been the occasion for family dissension.

Your own experience, perhaps, includes a knowledge of parents and children who have become estranged; of beautiful old homesteads rented or sold because youth and age couldn't agree. It is so wrong and unjust to all concerned that there must be a satisfactory solution. Can't we find it?

Ten years ago a sturdy family was growing up on a pretty farm of 120 acres in the corn belt. The land was gently rolling, and on the highest knoll stood the comfortable farmhouse surrounded by trees and shrubbery. I have visited the farm many times. The boys helped with the farm work and the girls helped in the house. No hired help intruded on the family circle, the farm was fruitful and there was no occasion to worry over the future. That is, while the children were young. The father was a decisive man of keen judgment and his word ruled everything that occurred out of doors and much that went on in the house. But withal he was liberal. The boys had their squirrels for pets, an occasional half-day for fishing, and the whole family went to the neighborhood parties.

As time rolled along, the children completed the district school. Some of the older daughters married, and the oldest son left the paternal roof to strike out for himself on a farm nearby. But the most promising son—there is usually one, in all large families, entitled to that description—decided he wanted a better education. He confided to his parents that he wanted to study farming at the state university and then return and help run the farm in a way that would give him a chance to show what he could do. He was willing to take a portion of the farm on shares and to accept the hardest part of the work. All he asked in return was his rightful share in the proceeds. The outcome of the talk was a reluctant agreement on the father's part, but no financial aid for higher education. His mother wished him Godspeed. Partly by borrowed money and partly by outside work he was graduated from the university with honors. Unspoiled, he returned to the farm ready and anxious to take up the work on the terms agreed upon. In fact, the other sons had left home and his help was sorely needed.

BUT instead of a frank and friendly feeling between father and son, the relations were strained. The son, who was to have charge of feeding the horses, would find extra amounts of grain in the feed boxes at irregular hours. The new sulky plow which he had purchased for the fall plowing was missing the day he planned to use it. The father had loaned it to a neighbor to plant corn, the son produced from his trunk some pedigreed ears brought from the state experimental grounds. The father then produced some ears from the farm granary and made this challenge:

"The way to judge seed corn," he said, "is to make a paper sack that will fit around the ear tightly. Then shell the corn, and if the shelled corn fills the sack it is good enough to plant." (This is in some corn-growing sections a common way of testing the proportions of kernels to cob. The most accurate method is by weight.)

So the father wrapped a sheet of manila paper closely around the ear he judged to be best and pinned the paper carefully. When the surplus paper was cut off, the sack was just as big as the ear. The family watched as the father then shelled the corn with expectant and trembling movements into the sack. The last kernel filled it to an eighth of an inch from the top.

In reply to this challenge, the son selected one of the state-bred ears and went through the same procedure. But before the last kernels were shelled off, the sack was overflowing. The college corn had won. A little thing to be sure, but it aroused dormant bitterness. The father's implication that his son was spoiled by "learning" and had become a "smart Alec" was hotly replied to, and both repudiated all former agreements. The breach was beyond repair. Things rapidly went from bad to worse, and in six months' time the farm was sold. The parents retired to town and the son returned to college as assistant on the teaching force. Thus the farm lost two good men.

HERE is another case that turned out differently. Perhaps this son had a little more tact than the other, but anyhow here is the story:

"When I was fifteen years old," he writes, "I was put to work at various farm duties, as I was the oldest boy. I was fond of machinery and had read in magazines how engines made work easier. So I longed to have one. But Father wouldn't hear of it, as the farm was not debt-free, and Mother feared gasoline so intensely that I got no encouragement there.

"So I resolved to strive alone. I did extra hauling when the team was idle. Having a telephone and living close to town, I succeeded in getting parties to take out, coal and movings to haul, also stone and gravel for the roads. At eighteen I had saved the necessary price, \$150, and bought a portable engine. Now I am of age and my parents are proud of me and my engine. I wish I could estimate in cash what that engine has saved Mother in physical strength, how many strokes it has saved her hands by running the washing machine, separating and churning; how much energy it has saved Father in grinding grain, shelling corn, shredding the fodder, making cider, and sharpening tools.

"Yet besides this labor saved on the farm, I have earned with it nearly \$400 clear in three years. Not all neighbors have engines, and they give me much of their work."

Here, too, the father had always done things the old way and could see nothing in the proposed engine but an expense that he could ill afford. But he was willing to be shown and was not jealous of his own son. Shouldn't we face the problem in a light something like this? The son is perhaps headstrong and overproud of his young manhood and progressive ideas that he has picked up from all kinds of sources, reliable and otherwise.

The father, on the other hand, has made a success of life in his own way against obstacles and difficulties which the son can never realize. Perhaps the father is a trifle overproud of his practical knowledge and experience.

Is not such an occasion an opportune time for the father to show true wisdom by remembering his parenthood and greater experience with the problems of life? The son, though a man in stature, is at heart still the little boy who has gone to his father for almost everything he wished to know.

"Now I am of age and my parents are proud of me and my engine," says the son in his letter. Could any appreciation of a father's praise be more delicate or more boyish, and yet this young man is of age?

Give the boys a chance to try new methods. What are a few mistakes or even a little money spent foolishly? The worst that can come of them will be for the best. For the son who has overreached his judgment will come to a sympathetic father for help and advice. And if the son makes a success and the father has lent a hand here and a suggestion there, both will have a right to share in the success and also the approval of friends and neighbors who are always diligently watching a father-and-son combination.

The Editor

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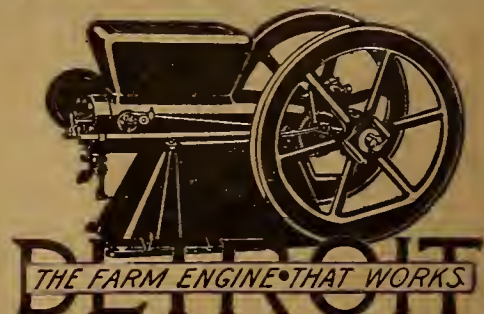
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No. 7

Earning Land of Their Own

How Four Renters Get Money and Credit Enough to Buy Farms

By HARRY M. ZIEGLER

WHILE this article deals with the results obtained on only four farms, the same plan can be worked on any farm. If you are a renter show this article to your landlord—it may mean a farm for you. If you are a landowner, try the plan with your renters—it will put money in your pocket. If you operate your own farm, the plan is all the better—you can keep all the increased profits.

THE EDITOR.

ATENANT who makes good and remains on one of the Cavanagh farms for five or six years will have money and credit enough to buy a farm for himself. He will be able to do this if he does as well as the Cavanagh tenants have done since the farms were tile-drained and heavily fertilized with potash and phosphoric acid five years ago. It will be possible for him to buy a farm because he will have made a lot of money, and will have gained the confidence of the local bankers who will lend him the money to complete the purchase of the farm.

Hence many good tenants—men with plenty of heavy work horses, excellent farm experience, the necessary farm machinery, and some money—are waiting to rent one of these farms.

"Our family has been renting farms for fifty years," John A. Cavanagh of Des Moines, Iowa, owner of more than a thousand choice acres, began his reply when I asked him why his tenants were successful and how tenants could get farms of their own, "and I have seen many tenants come and go—with some of the successful ones going on their own farms. During that time I have learned how to make farms pay good rentals. I do it by meeting the tenants more than halfway, and by managing the farms as if they were factories. The tenants and I cut down the cost of production by increasing the yield, and we get the highest market price because we have the quality and sell after most of the grain in the country has been marketed. We store the grain in well-ventilated, rat-proof, hollow-tile corn-cribs and grain bins.

"Many things affect a tenant's ability to buy a farm. Health is one of the biggest factors. If a man enjoys health he can work at top speed, his brain is clear and in good working order, he is cheer-



Charles Holmes formerly did teaming in town. Then he and his three sons moved onto a 240-acre farm. After four years Mr. Holmes was able to buy a farm of his own

ful and optimistic. If a tenant or members of his family are ill often, he does not have the ability to think and plan and work as he should to make a success. He needs horses and machinery and a knowledge of successful farm practice in his State."

All of the Cavanagh farms are grain farms. An average year Mr. Cavanagh's share of the crops exceeds \$10 an acre; in real good years it has been as much as \$12 and \$14 an acre. Mr. Cavanagh receives as rental one half of the corn crop, two fifths of the small grain, and \$5 an acre for the pasture land. This shows how much money the tenants are making. All of the farms are tile-drained. Where there is not enough manure produced on the farms to keep up the fertility, commercial fertilizers are used. Mr. Cavanagh pays for the fertilizer. All the tenants have to do is to haul it to the farms and apply it.

Number of Acres Each Man Farms

ITALKED with four of the tenants who are farming the Cavanagh acres. George Fauch is farming a 280-acre place. Mr. Fauch has lived on the farm four years. He has one boy large enough to team. The crops raised in 1916 included 120 acres of corn, 80 acres of oats, and 80 acres of hay and pasture. Fifty acres of the corn was fertilized with commercial fertilizers. He plans to own a farm of his own.

Charles Holmes and his three sons have farmed a 240-acre farm for four years. Mr. Holmes farmed in Iowa for several years, then he ran a team in town for several years more. The love for country life

and expects to own a farm of his own, came from Pennsylvania four years ago. He has two sons that help him. Mr. Welker farmed in Iowa a year before he rented a Cavanagh farm three years ago. He paid nearly \$7,000 for the crop in the field, the live stock, and the machinery that belonged to his predecessor. In 1916, Mr. Welker had 160 acres in corn, 70 acres in oats, and 90 acres in hay and pasture. Fifty acres of the corn land was fertilized with commercial fertilizers. The commercial fertilizer now used on the Cavanagh farms is a 2-8-2 mixture of nitrogen, phosphoric acid, and potash.

S. L. Wilson rents a 120-acre farm. He has lived on it two years. He has one boy large enough to run a team. Mr. Wilson is an expert mason and has worked twenty-two years at his trade. He has built many of the hollow-tile silos built in Iowa. He is making more money now than he ever made while working at his trade at \$5 a day. No fertilizer was used on this farm in 1916, except on an eight-acre drained pond. Eighty acres were in corn, 32½ acres in oats, and 7½ acres in pasture. Mr. Wilson hopes to be in the farm-owning class within a few years.

E. S. Nation lived on a Cavanagh farm for three years, then he bought a 120-acre farm near Angus, Iowa. He paid \$135 an acre for the farm. A small legacy helped in the purchase.

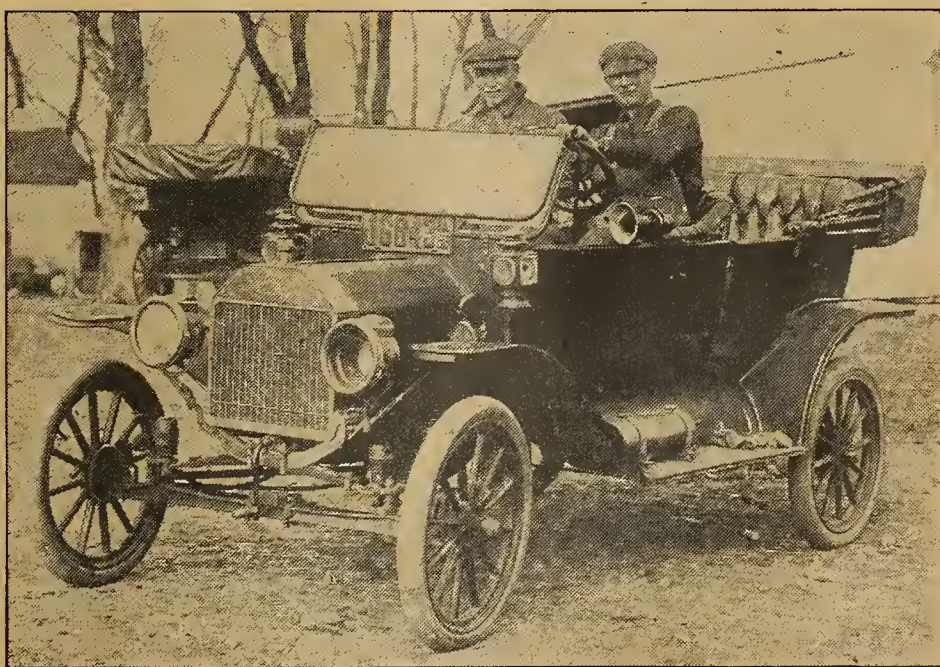
"The weak place in my farming operations," continued Mr. Cavanagh, "is the absence of live stock. While all of the tenants on my farms keep a few milch cows, several hogs, and a flock of chickens, and two of them keep some stock [CONTINUED ON PAGE 10]

was too much. He rented a farm for two years, while he waited for a vacancy on a Cavanagh farm. Mr. Holmes keeps a few hogs, several milch cows, and some stock cattle. The stock on the Holmes place produced enough manure last year so no commercial fertilizers had to be used. Eight loads of manure to the acre on the light spots in the fields produced satisfactory results. In 1916 Mr. Holmes had 140 acres in corn, 60 acres in oats, and 40 acres in pasture. Mr. Holmes bought a near-by farm, but he continues to rent a Cavanagh place. A small legacy helped him pay for the farm.

E. H. Welker, who farms a 320-acre place,



The hope of E. H. Welker to own a farm is soon to be realized. He raises corn, oats, hay, cattle, and hogs on a 320-acre place



George Fauch, at the wheel, has been farming 280 acres for four years. From his share of the crops he plans to buy a farm

Decorations From Seeds

California Woman Excels in a New Kind of Art Work

By MRS. TODD CARSON

SEEDS, just multicolored tiny seeds from which Dame Nature produces the most beautiful flowers and grains, are used by Mrs. M. J. Wessels of California, along with a glue pot and a toothpick, to make real pictures, works of art that can hardly be distinguished from oil paintings. Mrs. Wessels not only reproduces farm-yard scenes but does portraits as well.

She was voted a gold medal by the ninth session of the Idaho Legislature because of the splendid likeness she made of Governor Gooding, entirely of natural-colored seeds. The portrait is one of the treasures of the Idaho capitol and may be seen there in a place of honor carefully guarded by glass from its enemy Mr. Mouse. Mice adore Mrs. Wessels' work—in fact, they eat 'em up, if they can get the chance.

At the expositions in California there were splendid examples of her work. In San Francisco there were a number of pieces of her handiwork—one a beautiful Indian maid life-size, also portraits of the president and vice-president of the Raisin Growers' Association.

She decorated the San Joaquin Valley's booth, which was planned by her husband. It was considered one of the most artistic at the exposition. The ceiling was a graceful design of grapes worked out in seeds, raisins, and dried apples on a background of black cloth. It received praise not only from the casual visitor but from artists.

Another picture that attracted a great deal of attention showed two children in an alfalfa field in which several cows were browsing. The children were afraid to venture across the field; there was real feeling and atmosphere in this picture. A picture that left one smiling was of little black piggies getting their dinner. But the cock of the walk was probably the favorite—so lifelike, in fact, that visitors almost waited to hear him crow.

Mrs. Wessels has made a business success of a new line of endeavor. She drifted into her present work or married into it, whichever way you choose to put it. Her husband's business is building booths and arranging exhibits for agricultural displays.

Mrs. Wessels is often asked how she gets the colors for her work. Turnip seeds furnish black and dark browns, celery the light browns; poppy seeds give the gold-browns, clover red and yellow, and the alsike clover green in four or five shades; lettuce seeds furnish the milky white, and ground wheat the dead white; the larkspur gives the light tan shades, and the oil poppy the blue seeds. Thus nature provides every color needed.

Living Fences

By HOLLISTER SAGE

THE making of fences is expensive work at best, whether the material is bought or produced on the farm, whether they are made by contract labor or by hired men. For this reason the longer they last the less proportionate cost a year do they make. Nature is prepared to help get anybody who will work with her into line with cheap fences. She will do most of the work herself, in fact, while other operations are going on.

The setting of catalpa or hardy evergreen seedlings is rapidly done, and in five years they make sturdy posts for wire, and steadily grow stiffer year after year. Set them nine feet apart and cultivate potatoes between them for three or four years. Should one of them get cut off, it will sprout and soon equal the others in size if the strongest sprout is permitted to grow alone, having the entire strength of the root. Choose Speciosa catalpa for straight and rapid growth.

If the fence is a north line and you wish a windbreak there, as well as a permanent fence, set two-year-old Scotch pines, and do not cultivate them after June. This prevents late growth. After six to eight years both fence posts and windbreak are well established, some of the trees having trunks four to six inches through at the butt. I have grown Scotch pines more than nine feet high in six years.

Black and yellow locust trees make excellent fence posts, living as well as dead. They are of rapid growth, but are infested by borers in many localities. The Norway spruce is invaluable as an ever-

green of great beauty and usefulness. It has few equals for hardiness, and is among the most rapid growers for fence posts and windbreaks. It may be classed as nearly on a par with the Scotch pine.

Either of these evergreens will not stop, discouraged, if its leader gets broken, but will send up another leader, and will eventually outgrow the deformity. I have watched a horizontal lateral straighten up and assume a dead leader's place. It is most interesting. Both will bear pruning when needed, as in the case of lopping off an ambitious double leader. Both make splendid timber trees and reach majestic size for saw logs, producing lumber profitably. Besides the consciousness of a steadily increasing value to farm lands so fenced is the joy of seeing these "green things growing." From the time they are one foot high until they look down on the house, their growth and appearance, summer and winter, are a daily inspiration and delight. Dead, dry wood posts are not to be compared with these



These designs, including the cock in the cage, show Mrs. Wessels' skill. They are all made from seeds glued in place with infinite patience and care

green, growing, waving, protecting substitutes that are graceful, natural, fragrant, a real addition to the landscape. Their first cost is negligible—\$3 to \$5 a thousand seedlings.

It is a part of country life to be wondered at that every farm does not have a corner set aside in which from 2,000 to 20,000 young evergreens and other post trees are growing into usefulness and beauty every year.

Get a Receipt

By R. E. ROGERS

MOST business houses to-day will give you a receipt without the asking. But it's for your own protection that you ask for one anyway. There are too many chances for a mistake to creep into the bookkeeping, and you will have to pay again.

A neighbor farmer bought \$80 worth of wire fencing. He paid cash for it and took the fence home. In a few weeks there was a bill mailed to him for the price of the fence. He tried his best to get out of it, but there were no witnesses and he had to pay the entire thing again. A receipt would have saved this for him. It would have taken perhaps three minutes to get it, but \$26 a minute is pretty fair remuneration for a farmer's time it seems to me.

Of course a check is the best and safest way to pay any bill of any size, but a good many farmers do not

like to keep money idle in the bank just to check on. So the farmer without a checking account will find it pays to ask for a receipt. Any reputable dealer would just as soon give you a receipt as not. He does not want his pay twice any more than you want to give it to him, and he is glad to save trouble on both sides if you will just give him the chance.

I have made a practice of keeping receipts for two years in a special file, and at the end of that time I discard all receipts for small amounts. I also discard all which are made obsolete by more recent accounts with the same person or firm. But receipts for large amounts I keep indefinitely. They are comparatively few in number, take up little room, and are a convenient memorandum of my principal expenditures.

I have never been called on to pay a bill twice since I adopted this plan, but it gives a feeling of security well worth the slight effort it involves.

The Farmer's Office

By E. R. EVERETT

I KNOW a man who is a mighty successful handler of deals of considerable size who never has had a desk of any sort for keeping his documents and letters. The entire business is kept in the left-hand drawer of the sideboard in the family dining-room.

But with the most of us we like to have a roomy place for letters, circulars, catalogues, deeds, and the like where we can find them at once.

On our farm we raise chiefly vegetables and fruits. Therefore we are receiving dozens of catalogues each year from dealers who offer their wares to us. Without a place for these it is impossible to keep tab on the best offers and where to get them.

I spend a good many profitable and comfortable hours with the typewriter and swivel chair that you see in the picture. And I have found that certain conveniences in a farm office help greatly with the work.

A calendar pad is one of them. Each day has its leaf, and they are either torn off as used

or turned over so that the various memoranda can be quickly found later if desired. As I think of some things that I want to do in a dozen weeks from now I just jot them down near that date. As the days are torn off I soon find these things, and am reminded that I want this or that done, and it is. To-day's leaf asks if I have tested the onion seed yet. I have, because that was jotted on a page a few weeks ago.

I find that an upright wire file on a cast base is handy to stick daily expenses or notes on when I haven't time to put them in their regular places. It cost a nickel.

A tube of paste that is used by spreading through a brush fastened to the end of the tube is worth while. It is quickly uncapped, is never dried up, and you want to paste things lots of times. Costs a dime.

I have a little pasteboard box near the typewriter to hold the eraser, paper clips, and pens that are needed so often, but are seldom to be found just when I want them. Didn't cost anything.

A coiled wire pen rack handy keeps the pens and pencils where they belong and prevents a littered desk. It cost a dime.

A pair of long-bladed shears are very handy. A good many articles in the farm journals need clipping for the future. If the shears are handy you will be likely to clip. If they are not you will let it go because you are too tired to go to the sewing machine after them.

Of course a letter file is one of the necessities. It saves space in storing letters and time in finding them because the entire book is indexed.

About forty cents gets a good one.

Buy a dollar's worth of stamps at a time. It pleases the mail man. It saves you waiting a day to mail a letter when the stamps are all gone. It doesn't cost any more, and is worth while all around.

An important piece of furniture in a farmer's office is a bookcase in which may be kept the government year books, the state annual or biennial reports, reference books and bulletins, and of course the farm accounts. Every important thing known about agriculture, about farm buildings, machinery, and equipment of all kinds can be had in printed form. Some of this information may be had for the asking and the remainder can usually be secured at very small cost.

A good veterinary book will earn its cost if just a lamb or a pig, or even a good fowl, is saved from a premature death. A reliable book on feeding farm animals is now almost indispensable when high-priced feed must be bought. In a similar way books on drainage, breeding, and farm management will avoid a good deal of uncertainty and experimenting because you can start on your special problem with a complete knowledge of everything already known about it, as worked out by others.

And of course a farm must have its printed letterheads and envelopes.

E W



A typewriter, a letter file, and printed stationery are the basis of a farmer's business correspondence

Planning Farm Work

Value of Foresight in Laying Out a Year's Operations

By P. C. GROSE



Tiling operations are best planned early in the year and carried out when weather permits

WHEN each year's harvest has come and gone, it has been my practice to look back and note the important things I have learned during the year. I endeavor to learn by study and observation, but the lessons that impress me most, stay by me the longest, and do me the most good are those taught by personal experience.

For several years our neighborhood has been rather broken up in the matter of getting machines at threshing time. One machine would slip in and thresh out one corner. Another machine would thresh out another corner, and so on. But in the year just past our neighbors as well as ourselves had enough of that hit-and-miss system. Three different machines were in the community at the same time and pretty badly disrupted things as far as the usual exchange of help was concerned. After the machines were engaged and we had all planned on threshing, it was too late to change matters. But we all learned a lesson in trying to thresh without full crews.

Despite the number of machines, the rate of getting threshing done was slower than ever before, and we had the extra bother of looking around for new hands. Next year we are planning to do what most progressive farm communities have already done; that is, to organize a threshing club with a prescribed system of management.

Another good lesson I learned from a neighbor whom I have had reason to regard as just a little better farmer than myself. I have been watching his methods for several years. Each year he is the first in the neighborhood to get a field of corn planted. Last spring I determined to be up with him on that point at least, and succeeded. I was planting corn a day ahead of him when another neighbor passing along the road hailed me. "Too early for that yet," he said. "I'll take the later planting for mine. About the time that gets up nicely there'll be a frost, and then what have you got?" I did feel uneasy and mentioned this remark to the neighbor after whom I was patterning.

"True enough," he replied, "there is a big danger; but it happens that frosts come in the fall just the same as in the spring. If frost does catch you in the spring, you can simply plant over, losing nothing but your time and seed. But if a frost catches you in the fall you may lose your whole crop."

In the fall when an early frost hit our section and caught our late corn only partly matured when the early planting had fully ripened, I felt it was a pretty good practice to pick out the farmers who are just a little better than yourself and then follow their methods and advice.

Another problem which others no doubt as well as myself have had to meet many times is that of enough teams during a rush of summer work. With a large acreage of hay—the heaviest we have ever grown—and an unusually large field of oats, all to be harvested close to a delayed and rushed period of corn-plowing, we faced a shortage of teams. In whatever way we arranged our plans for the work, we saw that there was just a little more to do than our overworked horses would be able to stand.

To make matters still worse, a period of hot, dry weather began just at this time and we had grave fears that we would have to let some of the work go and stand the loss as best we could. In this perplexity an idea occurred to me

E.W.

which worked out in the following manner: After rearranging our system a little we got the horses to work just as early in the morning as possible. Shortly before noon we took them from the field and allowed them to rest in the cool stable until late in the afternoon. Then we took them out and worked them until dark.

The effect was surprising. They not only remained in fairly good condition but performed more hours of work a day, and we managed to get through the season in good shape. With horsepower costing regularly from eight to ten cents an hour, and at these particularly busy times worth from three to four times that much, a good manager is going to put himself out a little to accommodate his teams.

But sometimes new methods do not always turn out so well, as you will see from the following incident: Last winter we hauled a great deal of corn in the fodder upon some hilly ground in one of our fields. This fodder was for a herd of hogs. By spring the cobs, husks, and stalks had been rooted by the hogs into well-tramped piles, and when we came to plow the field we were not sure what was the best thing to do with them. Following the easiest course we started the plows and raked the corn-trash piles into the furrow as the ground was plowed.

The heavy clay soil, such as we have, puddles badly and makes clods, if plowed too wet. While the rest of the field was quite dry, this covering had held the moisture, and a nice patch of hard clods all summer was the result. Hereafter we are going to spread such trash carefully long enough before plowing, to have the ground dry out.

In selecting our farm equipment and in making improvements, we are gradually learning that it pays to get the best we can afford. Also, that it is best to put off making a purchase rather than to buy an inferior article. Poor equipment is short-lived and even when new gives more or less trouble. But standard goods are a pleasure to work with, and we know they will not fail us in an emergency. I refer especially to machinery, fencing, water tanks, pump supplies, and all kinds of building material.

We have a good many home-made contrivances for saving time and labor, and are constantly on the watch for new methods of doing the work both indoors and in the fields which will help to get better results with the same amount of work. Of course we realize as well as anyone else that farming can never be made automatic, nor can the same methods be successfully used on different types of soil and in different sections of the country. But by holding ourselves ready to adopt new ideas from any source and by figuring out the best way to reach a certain end, we feel that we are becoming better farmers.

Farm as Factory

By HAMILTON A. HOOPER

THE manufacturer in a large city pays dearly for his floor space. So much so that to make a legitimate return upon his money invested he must utilize every square inch to advantage. If most of his floor space is occupied by machines which are producing 1,000 pieces a day when others in his line of business have machines that turn out 2,000 pieces, then he is running his factory at only one half its earning capacity.

Because we as farmers own so much "floor space"



A cart for handling slop or water shows good management. A barrel holds as much as ten buckets, and shortens the time required for chores

we sometimes fail to consider whether we are receiving adequate return in proportion to the amount of land under cultivation. In the case of the orchard, for instance, we think nothing of allowing half-dead, broken-down trees to remain, necessitating almost the same amount of care and cultivation as trees which are bringing in good returns. In this instance trees are our machines, and they must bring in returns in proportion to the floor space they occupy or else they are taking money out of our pockets.

And so it is with the whole farm. If during spare hours we should make a rough sketch of our farm and then carefully study the various fields, we can determine by past experience just what sort of crop will bring in the greatest returns for the money and labor invested. Why not endeavor to utilize every square inch of his land in some way or other? We shall be surprised to find that we not only increase the efficiency of the parts of the farm already under cultivation, but also that we may utilize nearly twice as much of our land as we have considered available before.

Consider the farm a factory, consider land the floor space, crops the machines, and then endeavor to make all work together with greatest efficiency.

A Profitable Phone

By R. C. GIFFORD

BY THE systematic use of our telephone in a business way we have made it one of the most valuable pieces of equipment on the farm. When we have anything to sell we call up the buyers and ask all who are buying that particular thing to come and see it and make an offer. Here the phone saves trips to see these buyers, and of course the highest bidder gets the produce. Buyers usually prefer to deal with farmers who have telephones, as I learned from the following incident:

We had 30 tons of No. 1 timothy hay for sale, and one buyer offered a fairly good price. But we felt



A permanent improvement like this concrete end post is cheaper than a makeshift

that the hay was worth 75 cents a ton more, so we held it. About an hour later he called up and asked, "If I bought your hay, could you send over three loads this afternoon and the balance as soon as possible?" We replied that we could.

He explained that he had just received an order to be shipped that week and said: "I'll take the hay at your price. With that 30 tons I'll have just enough of the right kind of timothy to fill the order. Some other people have hay that I could get cheaper, but they have no telephones and I have no time to go and see them." So thanks to the phone we made \$22.50 more on that deal.

Another time a small part broke in the binder right in the midst of harvest. We could not go on, and the wheat was ripe. The nearest place from which we could secure repairs was a supply house 50 miles away. We called them over long distance, explained our predicament, and received the repair part by parcel post the next morning at nine o'clock.

One day while we were hauling hay the team became overheated and, on reaching home, one of the horses began to have chills. We located a veterinarian over the phone and described the symptoms. "That horse has acute pneumonia," he said, "and if he is to be saved, the work must be done within an hour. I have so many calls that I can't possibly get to your place before noon to-morrow, so you will have to do the work. Dissolve a dram of quinine in a pint of whisky and give it to him as soon as possible. You must get him to sweating. Pile the blankets on him and keep him blanketed and out of drafts after he starts to sweat. I'll come as soon as possible." That phone call saved us a good \$200 horse.



Best and Cheapest Service in the World

Here are some comparisons of telephone conditions in Europe and the United States just before the war.

Here we have:

Continuous service in practically all exchanges, so that the telephone is available day and night.

A telephone to one person in ten.

3,000,000 miles of interurban or long-distance wires.

Prompt connections, the speed of answer in principal cities averaging about $3\frac{1}{2}$ seconds.

Lines provided to give immediate toll and long-distance service.

As to cost, long-distance service such as we have here was not to be had in Europe, even before the war, at any price. And exchange service in Europe, despite its inferior quality, cost more in actual money than here.

Bell Service is the criterion for all the world, and the Bell organization is the most economical as well as the most efficient servant of the people.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

One Policy

One System

Universal Service

In Europe:

Nine-tenths of the exchanges are closed at night, and in many cases, at mealtime.

Not one person in a hundred has a telephone.

Not one-eighth as many miles in proportion to population and territory.

In the principal cities, it takes more than twice as long for the operator to answer.

No such provision made. Telephone users are expected to await their turn.

No Food Embargo

Stopping Exports Would Reduce Production

By JUDSON C. WELLIVER



WASHINGTON, D. C.,
Dec. 26, 1916.

THE searchlights of common sense and plain information are actually threatening to be applied to the venerable cost-of-living question. "The trouble," declares one offhand authority, "is that these infernal farmers aren't raising enough things to eat."

Perfectly satisfactory explanation—to that man.

"The thing to do," announces the next, with equal confidence and equal lack of information, "is to put an embargo on foods. Don't let 'em be shipped away, then there'll be enough for home use, and prices will come down."

Now, I have heard both those arguments advanced by the same man. The fact that they are utterly contradictory of each other made no difference. An embargo would reduce prices, but would it induce people to produce more at the lower prices? Will a farmer raise more wheat when it's worth 80 cents than when it sells at \$1.80? Of course not. And that point is beginning to get to Congress.

On authority that is only less impressive than that of President Wilson himself, I am able to say that there will be no legislation to prohibit exports of foodstuffs. This comes to me from a counselor of the President, who has discussed the whole question of food costs with him, and who is convinced that if embargo legislation were to pass the President would veto it.

Back of this is a pretty piece of politics. It will violate no confidence to explain the true situation, because all the politicians in Washington understand it, though they generally speak of it with a confidential manner and an air of prodigious wisdom.

I can put it most effectively in the words of a very prominent Democrat, a party leader and man known to the whole country.

"For years and years," he said, "the Republicans used to tell the farmer that Republican tariff made the farmer's prosperity: it provided him a home market; it kept the pauper wheat of Canada and the cheap corn of the Argentine from coming here; it protected our hens from the competition of Chinese hens and our meat from the danger of Mexican beef and Australian mutton."

"When the Democrats came into power and made a tariff, they took off the protection on the farmer's stuff. They said it had never been worth anything to him anyhow. But all the same, I don't mind saying that some of us worried about it. If the farmers' prices had gone down, no explanations would have helped us. His prices, instead, have gone up. We don't need to explain. That's for the other fellows to do."

"The Democrats carried the country because they were strong with the farmers. We want to continue strong with them. The war and other factors have made the farmer prosperous instead of poor. We might clap on an embargo, bring prices of foodstuffs down, and demonstrate that the Republicans were right when they said we would ruin them."

"BUT do you think we're going to do it? Not by a jugful. We're not crazy. We've carried the farmer vote on a prosperity issue, after the Republicans had carried it for forty years. We have four years more of power ahead of us. In that time we reckon on breaking down and sweeping away the last vestige of the superstition about the tariff helping the farmer. Don't let anybody make you imagine that the Democratic party is going to throw away all it has gained with the farmer."

There is the practical politician's side of it. I don't assume to say whether he's right or wrong; I'm telling you what he said.

Then he went on from politics to the business side of it. In this case, business and politics got mixed pretty inextricable. But you'll have no difficulty getting his meaning:

"An embargo on food articles would smash the farmer's prices right away; it would give some help to the con-

sumer, though not in proportion to the injury it would do the farmer, because it wouldn't break down the forces between the farmer and the

consumer, which do a great deal to keep prices high.

"But instead of making things ultimately cheaper and more plentiful, it would discourage the farmer about raising bigger crops. He would say:

"I've been the national goat all these years, getting protection that didn't protect, being assured that I enjoyed indirect benefits, but never seeing 'em. Then comes a time when I'm getting some real, tangible, visible benefits—and what do they do? Slash 'em off at the first chance! Forbid me to cash in when the cashing is good! Not for mine!"

"SO THERE would be an increased movement from country to city. Farmers would believe more than ever that the whole governmental scheme was organized to make profits for the city man and the manufacturer, and to keep the farmer from getting his share. Instead of planting bigger acreages, clearing more land, opening new farms, adopting better methods, farmers would say, 'What's the use?' and look for suckers to buy them out."

Looking at it in this way—and I don't mind saying that it's the highly practical way most of the members of Congress are viewing it—there isn't a chance for embargo legislation. The Democrats want to keep the farmers they won this year; the Republicans want to get the farmers back; neither party is willing to punish the farmers for getting a slice of prosperity out of the war.

True, a lot of embargo bills have been introduced, and a big noise has been made about them, but nothing will come of them.

Congress is likely to do some radical things, and some effective ones, to reduce the cost of living.

But they will not be aimed against the farmer, or any other class of producers.

More than ever before it is coming to be realized that the machinery between producer and consumer is so clumsy that it causes most of the waste.

Also, this machinery is so little understood by the average person, or by public authorities, that it is easily manipulated by speculators for the purpose of taking unreasonable profits.

Take cold storage. Eggs and butter went up to prices that made them the prized luxuries of the rich. Other folks got curious, and there were investigations. It developed that scores of millions of eggs had been put into cold storage when they were cheap, and that instead of selling them when a good substantial profit could have been made, and when the public needed them, the holders still hung on for famine prices.

Again, look at meats. A Philadelphia newspaper lately printed an analysis of meat prices in France and here, showing that although France is not a great meat-producing country, and despite that it is at war, meats actually are costing the consumer less there than here. It explained that in France they have set up municipal abattoirs, or slaughtering establishments, to which anybody may take his stock and have it killed for a very modest fee.

The cold-storage end of the meat business has just been opened up by the Department of Agriculture, and its figures are highly interesting.

It is announced by the Department that the amount of frozen beef in storage now is 12 per cent greater than a year ago. There is 68 per cent more of cured beef in the refrigerators than twelve months ago. When it comes to frozen pork, the increase is 31 per cent; in dry salt pork it is 45 per cent; in sweet-pickled pork, 33 per cent; in lard, 47 per cent; frozen lamb and mutton, 21 per cent; and unclassified items, 34 per cent.

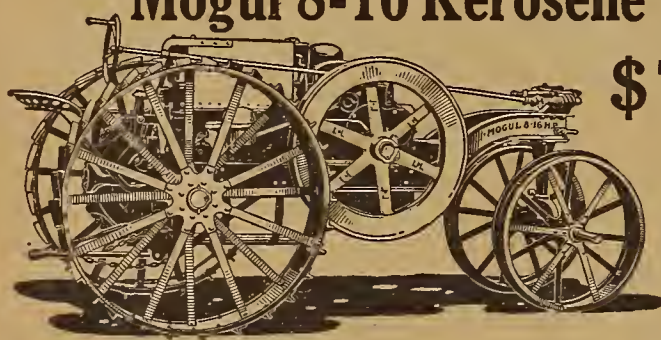
Such facts as these are breaking down the prejudice and the ignorance that have so largely affected opinion about the high cost of living. There is less talk about embargoes, and more about measures to prevent cornering supplies and boosting their prices.

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INTERNATIONAL HARVESTER COMPANY OF AMERICA
CHICAGO

U S A



Giving Away Money

A Multimillionaire Wants You to Enjoy the Comforts of Life

By JOHN D. ROCKEFELLER

WHICH is harder, to make money honestly, or to give it away intelligently and helpfully? John D. Rockefeller, who has made more money and given more than any other man in the world, almost never speaks or writes for publication—which makes this article all the more interesting.

THE EDITOR.

IF I were to give advice to a young man starting out in life, I should say to him: "If you aim for a large, broad-gauged success, do not begin your business career, whether you sell your labor or are an independent producer, with the idea of getting from the world by hook or crook all you can. In the choice of your profession or your business employment, let your first thought be, Where can I fit in so that I may be most effective in the work of the world? Where can I lend a hand in a way most effectively to advance the general interest? Enter life in such a spirit, choose your vocation in that way, and you have taken the first step on the highest road to a large success."

Probably the most generous people in the world are the very poor, who assume one another's burdens in the crises that come so often to the hard-pressed. The mother in the tenement falls ill, and the neighbor in the next room assumes her burdens. The father loses his work, and neighbors supply food to his children from their own scanty store. How often one hears of cases where the orphans are taken over and brought up by the poor friend whose benefaction means great additional hardship? This sort of genuine service makes the most princely gift from superabundance look insignificant indeed.

I have always been thankful that I was taught early to give systematically of money that I had earned. It is a good thing to lead children to realize the importance of their obligations to others; but, I confess, it is increasingly difficult, for what were luxuries then have become commonplace now. I have always indulged the hope that during my life I should be able to help establish efficiency in giving so that wealth may be of greater use to the present and future generations.

Perhaps just here lies the difference between the gifts of money and of service. The poor meet promptly the misfortunes that confront the home circle and household of the neighbor. The giver of money, if his contribution is to be valuable, must add service in the way of study, and he must help to attack and improve underlying conditions.

Great hospitals, conducted by noble and unselfish men and women, are doing wonderful work; but no less important are the achievements in research that reveal hitherto unknown facts about diseases and provide the remedies by which many of them can be relieved or even stamped out.

I am sure we are making wonderful advances in this field of scientific giving. All over the world the need of dealing with the questions of philanthropy with something beyond the impulses of emotion is evident, and everywhere help is being given to those heroic men and women who are devoting themselves to the practical and essentially scientific tasks of the world.

If the people can be educated to help themselves, we strike at the root of many of the evils of the world. This is the fundamental thing, and it is worth saying, even if it has been said so often that its truth and its meaning are lost sight of in its constant repetition.

The only thing that is of lasting benefit to a man is that which he does for himself. Money that comes to him without effort on his part is seldom a benefit, and often a curse. That is the principal objection to speculation—it is not because more lose than gain, though that is true, but it is because those who gain are likely to receive more injury from their success than they would have received from failure. And so with regard to money or other things that are given by one person to another. It is only in the exceptional case that the receiver is really benefited. But if we can help people to help themselves, there is a permanent blessing conferred. Hence, this is what we are trying to accomplish.

Men who are studying the problem of disease tell us that it is becoming more and more evident that the forces that conquer sickness are within the body itself, and that it is only when these are reduced below the normal that disease can get a foothold. The way to ward off disease, therefore, is to tone up the body generally; and, when disease has secured a

foothold, the way to combat it is to help these natural resisting agencies which are in the body already. Thus, these agencies are better able to check the disease.

In the same way the failures that a man makes in his life are due almost always to some defect in his personality, some weakness of body, mind or character, will or temperament. The only way to overcome these failings is to build up his personality from within, so that he, by virtue of what is within him, may overcome the weakness that was the cause of the failure.

It is my personal belief that the principal cause for the economic differences between people is their difference in personality, and that it is only as we can assist in the wider distribution of those qualities that go to make up a strong personality that we can assist in the wider distribution of wealth. Under normal conditions the man who is strong in body, in mind, in character, and in will, need never suffer want. But these qualities can never be developed in

There was then forced upon me the necessity to organize and plan this department of our daily tasks on as distinct lines of progress as we did our business affairs; and I will try to describe the underlying principles we arrived at, and have since followed out, and hope still greatly to extend.

It may be beyond the pale of good taste to speak at all of such a personal subject,—I am not unmindful of this,—but I can make these observations with at least a little better grace because so much of the hard work and hard thinking is done by my family and associates, who devote their lives to it.

Every right-minded man has a philosophy of life, whether he knows it or not. Certainly one's ideal should be to use one's means, both in one's investments and in benefactions, for the advancement of civilization. But the question as to what civilization is and what are the great laws that govern its advance, have been seriously studied. Our investments, not less than gifts, have been directed to such ends as we have thought would tend to produce these

results. If you were to go into our office and ask our committee on benevolence or our committee on investment in what it considers civilization to consist, it would say that it has found in its study that the most convenient analysis of the elements that make for civilization runs about as follows:

1. Progress in the means of subsistence; that is to say, progress in abundance and variety of food supply, clothing, shelter, sanitation, public health, commerce, manufacture, the growth of the public wealth, etc.

2. Progress in government and laws; that is to say, in the enactment of laws securing justice and equity to every man, consistent with the largest individual liberty, and the due and orderly enforcement of the same upon all.

3. Progress in literature and language.

4. Progress in science and philosophy.

5. Progress in art and refinement.

6. Progress in morality and religion.

If you were to ask them, as indeed they are very often asked, which of these they regarded as fundamental, they would reply that they would not attempt to answer, that the question was purely an academic one, that all these went hand in hand, but that historically the first of them—namely, progress in means of subsistence—had generally preceded progress in government, in literature, in knowledge, in refinement, and in religion. Though not itself of the highest importance, it is the foundation upon which the whole superstructure of civilization is built, and without which it could not exist.

Accordingly, we have sought, so far as we could, to make investments in such a way as will tend to multiply, to cheapen, and to diffuse as universally as possible the comforts of life. We claim no credit for preferring these lines of investment. We make no sacrifices. These are the

lines of largest and surest return. In this particular—namely, in cheapness, ease of acquirement, and universality of means of subsistence—our country easily surpasses that of any other in the world, though we are behind other countries, perhaps, in most of the others.

It may be asked, How is it consistent with the universal diffusion of these blessings that vast sums of money should be in single hands? The reply is, as I see it, that, while men of wealth control great sums of money, they do not and cannot use them for themselves. They have indeed the legal title to large properties, and they do control the investment of them; but that is as far as their own relation to them extends or can extend. The money is universally diffused, in the sense that it is kept invested, and it passes into the pay envelope, week by week.

Up to the present time no scheme has yet presented itself that seems to afford a better method of handling capital than that of individual ownership. We might put out money into the Treasury of the nation and of the various States, but we do not find any promise in the national or state legislatures, viewed from the experience of the past, that the funds would be expended for the general weal more effectively than under the present methods, nor do we find in any of the schemes of socialism a promise that wealth would be more wisely administered for the general good.

It is the real and absolute duty of men of means to maintain the title to their property, and to administer their funds until some man, or body of men, shall rise up capable of administering for the general good the capital of the country better than they themselves can.



Copyright Cleveland Leader

"Help people to help themselves," says this multimillionaire, "for money that comes without effort is seldom a benefit, and often a curse"

a man unless by his own efforts, and the most that any other can do for him is, as I have said, to help him to help himself.

I believe in the spirit of combination and co-operation when properly conducted in the world of commercial affairs, on the principle that it helps to reduce waste—and waste is a dissipation of power. I sincerely hope and thoroughly believe that this same principle will eventually prevail in the art of giving as it does in business. It is not merely the tendency of the times, developed by more exacting conditions in industry, but it should make its most effective appeal to the hearts of the people who are striving to do the most good to the largest numbers of their fellow men.

The Rockefeller Plan of Giving

IT MAY perhaps be pardoned if I set down here some of the fundamental principles that have been at the bottom of all my own plans. I have undertaken no work of any importance for many years that in a general way has not followed out these broad lines, and I believe no really constructive effort can be made in philanthropic work without such a well-defined and consecutive purpose.

My own conversion to the feeling that an organized plan was an absolute necessity came about in this way:

About 1890 I was still following the haphazard fashion of giving here and there as appeals presented themselves. I investigated as I could, and worked myself almost to a nervous breakdown in groping my way, without sufficient guide or chart, through this ever-widening field of philanthropic endeavor.

FARM and FIRESIDE

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January 6, 1917

Loan Law Fakery

THE passage of the Federal Farm Loan Law, and the work now in progress preparatory to putting this law into operation, has naturally led some artful tricksters to try to put across various schemes for the purpose of making some easy money for themselves.

One such loan scheme is being worked in several Rocky Mountain States where the farming population is sparse and neighbors far apart. These unlawful loan promoters claim to be working as agents to help introduce the new Farm Loan Law. They seek out farmers, tell plausible stories, and offer to furnish a loan of \$2,000 if the farmer will make an advance payment of \$50, but the contract must be completed or rejected without any delay. Some of these sharpers promised to have the funds ready for the applicants by January 1, 1917. The secret service of the Treasury Department has already arrested several of these fake loan promoters and have their eyes on others.

The secretary of the Federal Farm Loan Board wants this caution broadcasted to farmers: "Under no consideration should farmers pay out any money or give any notes to agents or strangers purporting to be working in the interests of the new Farm Loan Law."

Fortunately, our Farm Loan Law requires the services of no unknown agents or interlopers to get the loaning machinery into operation. Neighbors or residents of any community can form a local group through which the business of the loan-making can be carried on. When in doubt, write the Federal Farm Loan Bureau, Washington, D. C. FARM AND FIRESIDE also stands ready at all times to help.

Electric Light Outfits

ELECTRICAL Week, held last month, was largely of trade significance, being devoted to a review of electrical accomplishment during the year just past, and to plans for extending the use of electricity in the future.

For a number of years, Electrical Week has been favorably commented on by newspapers and popular magazines circulating in towns and cities. New electrical devices are discussed, and in one town a so-called electric cottage equipped with a complete line of electrical conveniences was thrown open to the public.

But rural America, though invited to take part in the celebration of Electrical Week, has never been very much enthused. Probably many readers are hearing of Electrical Week for the first time. But listen to this: An expert associated with a concern making farm electrical outfits says that in the past eight months they have sold over 10,000 of them. That is the report of only one manufacturer, of which there are more than a score.

You will remember how farmers waited for their city friends to test out motor cars and then became the largest buyers of them. In a similar way, the figures just mentioned, supported by

personal observations, look like the determination of many persons to give the farm a reputation for bright lights, partly for their own comfort and also to make the home more attractive for the young folks.

Iowa's Open Forum

ONE of the attractions for Farmers' Week at the Iowa State College this year is an open forum. Twice daily during the week an auditorium will be set aside for the use of farmers, and everyone who attends will have a chance to say his say.

There will be no special speakers, but those who attend the open forum will be expected to "speak out in meetin'." Iowa farmers are invited to bring to this meeting their most difficult problems as well as their best experiences, and to exchange ideas with each other. Whether the farmers will be able to express themselves in as scientifically correct words as professors would do if on the program is doubtful and unimportant.

But this much is certain:

Iowa farmers will feel more than ever that the college is for them, and they will have an increased respect for an instruction force which is willing to listen part of the time. An open forum is a good thing to put on the program for most any kind of farmers' gathering. The smooth talker is not always the man with the best ideas.

Lights on Vehicles

ALL persons have equal rights on the public highways and all highways which are presumably safe to travel by day or night. But the increasing amount of night travel by automobiles requires the exercise of prudence, even considering our rights. We drive some of these motor cars, others are driven by our own neighbors, and still others by strangers, who, like ourselves, want no more than their own share of the road.

The number of reckless automobile drivers is small. Motor cars cost too much money and human life is too precious for any sane driver deliberately to risk an accident. The new, inexperienced driver is always with us, and as long as buggies and horses, which are dark in color, venture out on the roads at night without lights, there will be accidents and uncomfortably close escapes. If you must drive without a light, drive a white horse; but, better, get a buggy lamp and use it. Carry a lantern on the wagon and a small oil light or electric flashlight on the bicycle.

Then you may retain your half of the road without endangering yourself or others. At the same time you will keep your own respect as a citizen who has a right to use his own roads whenever he pleases, without risking his life.

Not Foot-and-Mouth Disease

UNPLEASANT memories of the foot-and-mouth epidemic of 1914-15 were awakened a few weeks ago by the discovery in the Kansas City stockyards of Nebraska cattle with sore mouths.

The sore-mouth disease, however, proved to be vesicular stomatitis. Blisters and sores on the tongue and mouth gave it somewhat the outward appearance of foot-and-mouth disease, but as animals recover, usually in less than ten days, it is not considered a serious menace to the stock-raising business.

Aside from the sense of relief following the scare is the satisfaction of knowing that the government authorities acted with unusual promptness. In less than a week from the time the first symptom was observed, an official statement was issued from Washington stating that the disease was vesicular stomatitis and giving stockmen and state officials complete directions for its control.

Proud of Their Product

WHITE HALL SULTAN was the name of a famous shorthorn bull. His owner was proud of him and proud of his get, and every calf he sired was called White Hall Sultan's "This" or White Hall Sultan's "That." Would the owner have insisted on this if his bull had been a scrub?

It's just the same with paints, roofing, wagons, plows, separators, stock foods, and the hundred other things you buy on the farm. If the manufacturer is proud of them, he puts his name or his trade mark on every article he sends out. If he isn't proud of his product, he sends it out in bulk unnamed and untrade-marked. Better be on the safe side: buy registered stock and trade-marked goods.

Cows and the Map

FOUR years ago the exhibit of dairy cattle at the Louisiana State Fair comprised 25 head. In 1916, 400 were shown. The United States Dairy Division has assisted in the organization of three bull associations, three cow-testing associations, the purchase of 927 head of cattle, and the establishment of two more creameries.

To a large measure the increasing importance of Southern dairying is due to educational work. But whether the dairy business, after being well started, will grow depends on more material things, including refrigerating machinery. Heretofore the lack of adequate means for cooling butter and regulating the temperature of cheese-curing rooms has limited the advantages of dairying to the northern half of the United States.

Before the days of ice machines, Kansas had a liberal sprinkling of cheese factories, but they disappeared because Kansas cheese couldn't compete with cheese made in Wisconsin, Minnesota, Michigan, New York, and Canada. Refrigeration changes the complexion of things. An ice machine driven by a small gas engine or electric motor makes dairying independent of any particular latitude. What the South with its year-around pastures will do in dairying when invaded by better cows and modern factory equipment is one of the bright things on the dairy horizon.

Our Letter Box

More About Sugar Peas

DEAR EDITOR: While reading your magazine of August 5th, I saw a little piece about the sugar peas our mothers raised. I well remember at about the age of ten years of my mother going to the garden and picking delicious sugar peas and snapping them and cooking pods and all, and they were so delicious.

I have for several years raised those delicious peas. Few people of these days know of them, and my neighbors wonder when they see them growing, and ask what they are. I grow them for the delicious dish they make for the table and in memory of my childhood days, which were spent in Connecticut.

M. STANDISH, Colorado.

Hog-Proof, But Not Dog-Proof

DEAR EDITOR: Your editorial "Fencing Out the Dog" struck a funny place in my system as I read it, and all because just the day before, while going down a farm lane, I saw a dog force his way through a fence that was supposed to be dog-proof.

Two men who were hunting mushrooms had climbed over the fence into an old hillside orchard that had been a hog pasture all summer, and they had left the dog, a sort of Collie mongrel, to take care of itself. The fence had been up less than a year and was in good condition. The dog made several attempts without getting through, and had become desperate to meet its master who was getting farther away. So with one final and desperate effort it succeeded in forcing itself through where it managed to get its head between the strands of wire.

On this farm, which is just outside of our city, the owner had to give up keeping sheep because of the numerous dogs that bothered the flock. His fa-

ther before him had always kept a flock, and for more than sixty years sheep had been raised on the place.

If a hog-proof fence will not keep out such dogs, what will? It is small wonder that the farmers are going out of the sheep-raising business.

H. W. WEISGERBER, Ohio.

Honey, Health, Happiness

DEAR EDITOR: When farming on the Missouri bottom lands, we always kept 25 to 30 stands of bees. In the spring the supers were put on and the surplus in the fall was strained and put away in five-gallon cans. At that time I didn't have any recipes for using honey in cooking. Nevertheless, our family of five and an average of three hired men found no difficulty in making use of from 800 to 1,000 pounds of honey on the table each year.

For three years we butchered no hogs or beef animals, and the honey to some extent took the place of meat during that time. Of course we bought some meat; but, in the main, honey was our meat, jellies, and preserves. It was seldom that there was not a dish of honey on our table during those three years.

I believe our family was healthier when honey was used so abundantly than during the three previous years when we used meat liberally. Many people look on honey as an expensive luxury. I consider it a necessary article of food, and am sorry that I am not now in a bee country. We are trying sweet clover here now, and it seems to promise to give good results for honey-making. My husband liked honey in his coffee, and we sometimes used it on cereals.

MRS. ONA FOLIART, Oklahoma.

Nearly Scared to Death

DEAR EDITOR: I have noticed the various accounts of narrow escapes you have published, and will relate a strange experience I had at the age of eighteen. I was plowing and wearing a pair of work pants much too large for me. The team of horses was guided with a single line and a "jockey stick." On each end of the jockey stick was a leather strap one of which was fastened in the ring of the bridle and the other in the ring of the hame on the other horse. I had an extra strap in case of breakage, which I put into my pocket.

Along about ten o'clock I felt a little tired, so I drove the team under the shade of a fine oak. My attention was invited by a large flat stone which rested just above the furrow. I sat down on it and spent perhaps thirty minutes resting, watching my faithful team fighting off the flies.

Then I arose and as I was saying "Get up" to the team I felt a creeping sensation under the left pants leg. Knowing that quite a number of copperheads had been killed in this field I felt certain that one of the reptiles had crawled from beneath the stone I had been sitting on and had gotten up my pantaloons.

I screamed for help. Presently the farmhand came running around the bend of the field, thinking something serious had happened. When he came in sight he yelled with all his might, "What's the matter?"

I tried to answer, but my voice had left me and my nerves and muscles had got to twitching so badly I could not stand still, and with every movement of my limbs I could feel the snake descending my leg.

Finally he came near enough to reach me, and I feebly made sufficient gestures that he knew something was under my clothes. With a sudden grab he jerked my pantaloons from my suspenders as well as from my body. While I lay helpless on the ground he instituted a search and, upon turning my pantaloons, found that the strap which I had put in my pocket had descended through a hole in it and was working its way downward. I will never forget the sensation. If I had not been rescued at that particular time there would surely have been a funeral.

E. L. HINEGARDNER, West Virginia.

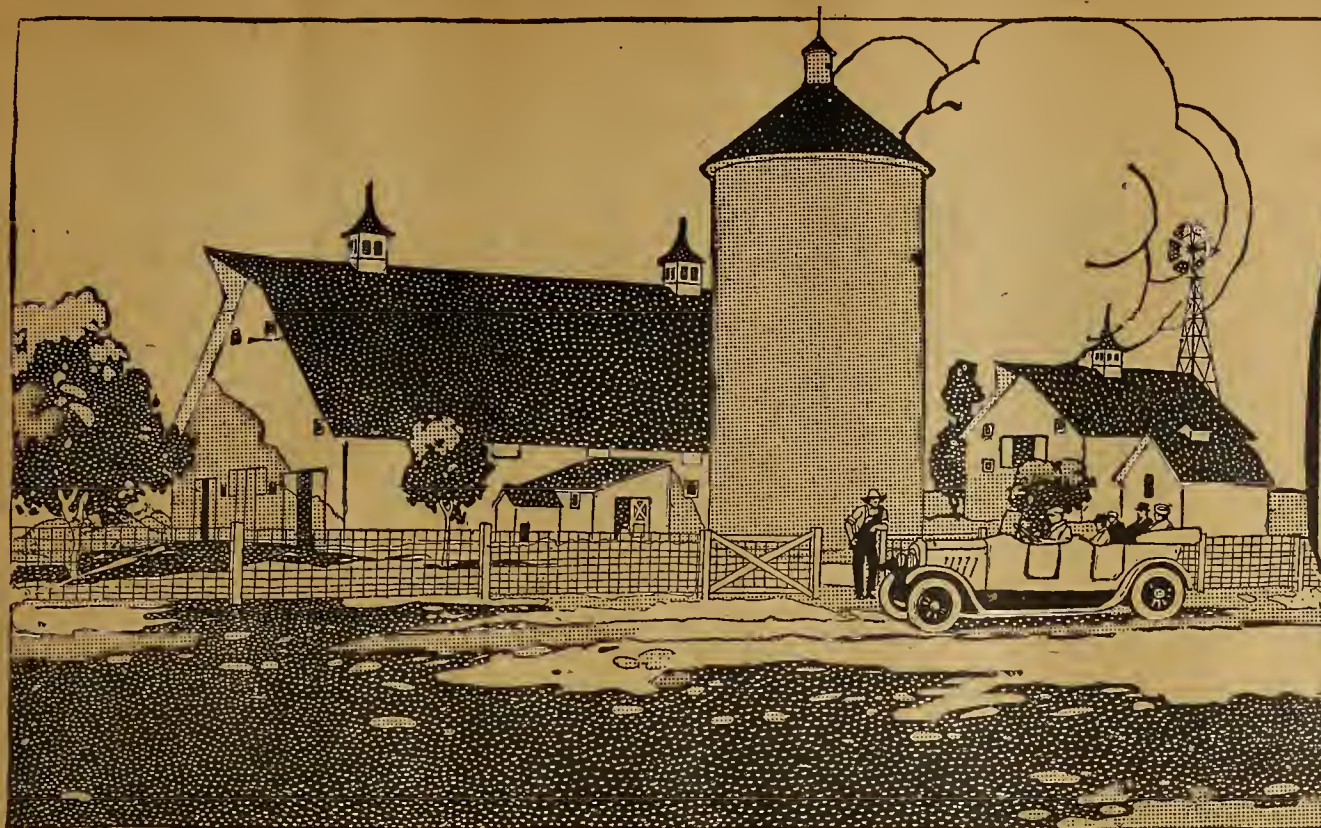
She'd Spend It

DEAR EDITOR: A man asks what he shall do with \$10,000, in FARM AND FIRESIDE, September 2, 1916.

Ten thousand dollars? Let me see—'Tis wrong to bank and let it be, But spending it—why, I'd go broke! This is the truth and not a joke, For my old purse ne'er had a stuffing. I've sighed at other people's puffing, And longed to help them spending it—Alas! They never cared a bit. I'd spend the nickel, dime, and cent Till folks would wonder where it went And why I wore such tattered clothes. I'd answer like a rooster crows, That filthy lucre catcheth dust; Store not it up for moth and rust, Or thieves to steal and truck away—I'd spend ten thousand in a day.

BETIE H. McDONALD, Washington.

EW



Farm Buildings and Wooden Block Silo on the Property of Charles Coleman, Wayne, Ill.



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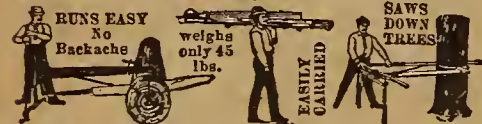
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Good-Health Talks

Suggested by Questions from Our Readers

By DAVID E. SPAHR, M. D.

J. R. T. of Michigan writes me that three doctors have told him that he has an enlargement of the liver. Lately his heart beats so hard at times that it tires him. Five years ago he took treatment for ulcers in bowels. His stomach and bowels hurt him some now. He has a strong desire to sleep all the time.

The enlargement or congestion of his liver might be caused by interference with the circulation from heart disease or cirrhosis of the liver, or over-feeding and lack of exercise. It would be well for him to be examined for gall stones, appendicitis, and heart disease. He should take a full dose of Carlsbad salts in a glass of hot water before breakfast, and ten drops tincture of gentian and ten drops of dilute hydrochloric acid in a glass of water after meals.

Abscesses

At noon, after I had eaten, I was taken with a dizziness and a violent headache which lasted the balance of the day. Did not sleep at night, then had chills and fever, which lasted all the next day, and that night the fever left. From the first my right arm felt weak, and after a while I noticed it was red and swollen, and after six and one-half weeks it opened, proving itself to be an abscess. At present there is another abscess there. Are abscesses caused by a bruise, strain, or impure blood?

Mrs. C. T., Oklahoma.

IN YOUR case the abscesses were caused by some profound infection or toxæmia, and the cure would be to hasten suppuration by hot poultices and speedy evacuation.

Excessive Beating of Heart

MRS. E. T. M. of North Carolina is forty-two years of age, and suffers severely with excessive beating of the heart and pulsations that are sometimes all over the body.

She is conscious of every beat of her heart, as it is distinct and audible. Her head feels full, and if she takes a drink of water it makes her dizzy. All this is accompanied with indigestion and constipation, blurred vision at times, and



So I Can Reply Promptly

WHEN you write to me about your ailments, or those of your relatives or friends, please write on only one side of the paper, and make your descriptions of symptoms as brief as you can. If you want a personal reply, kindly enclose a stamped envelope. DR. SPAHR.

neuralgia pains over her body. Besides, she is nervous and irritable, and is so tired of hearing every beat of her heart.

Although she does not mention having goiter, or trembling of the fingers when she holds out her hand, her other symptoms point conclusively that she is suffering with Basdow's or Graves's disease. The rapid pulse with the annoying pulsations and nervousness and the other distressing symptoms lead me to this conclusion. She should go to bed and stay there for a month, or until her heart quiets down. She should keep an

ice bag over her heart and avoid all worry and excitement.

Vomiting

I am a farmer twenty-two years old. Five years ago I fell nearly twenty feet, injuring my back, and it is still impossible for me to straighten it. Since then I have been subject to stomach trouble, and vomit several times nearly every day. I have always had a good appetite and sleep nine hours every day, but a hard day's work makes me weak and tired.

C. M., Texas.

YOU should take some physical culture exercises, and have your back rubbed and massaged. Be careful of your diet, and take a teaspoonful of neutralizing cordial after meals.

Bronchorhea

For nine years I have been troubled with mucus rising in my throat, and I have to make such an unpleasant noise getting it out. About four years ago I starved myself trying to cure it. I haven't much of an appetite and it seems to affect my eyes. Do you think the milk diet would cure me?

Miss I. L., Nebraska.

HOW about goiter? Are you afflicted with it? Does the mucus come down into the throat from the post nasal opening? Do you cough or just clear your throat? I don't know what is the matter with you, so cannot prescribe a cure. State whether the symptoms followed a cold or exposure, or whether they developed slowly without any apparent cause. Write me again.

Earning Land of Their Own

[CONTINUED FROM PAGE 3]

cattle, they haven't enough to be really in the live-stock business. This means we have to use commercial fertilizers to maintain the fertility of the acres. Manure would do the same work, although it takes longer at first to get returns from manure than it does with commercial fertilizers. But the manure is cheaper.

"Until more tenants have a liking for rearing and fattening live stock, I can't afford to run the risk of having a good many thousand dollars invested in live stock. We might lose more money in one year than we could possibly make in three or four years. This isn't true with grain-farming. You haven't as much capital invested, hence the risk is less. Live-stock farming demands more of a landowner's time than grain-farming does. George E. Roberts of the National City Bank of New York City owns a great deal of land in Iowa. He and many other large landowners I know feel the same way about stock-farming."

Because land values and rentals are increasing, it is becoming more difficult for a tenant to buy a farm. Everything has gone up in price during the last ten years.

Where the cash rentals were from \$2.50 to \$3 an acre several years ago, they are now \$6 to \$9 an acre. But it is easier now than it was ten years ago for successful tenants to borrow money to complete the purchase of a farm.

Two things have brought about easier money. The crops are so adapted in the older settled parts of the United States, and especially in the corn belt, that the crop returns don't vary much in a ten-year period. It isn't as much

of a gamble for the money lender as it was when many farmers were guessing about the crops they should plant, and how they should cultivate them. Then, bankers have come to realize that what is good for farmers is good for them. If the farmers of the county prosper they prosper. This has helped much in graduating men from the tenant farming to the landowning class.

Mr. Cavanagh always fixes up a farm before he thinks about renting it. This may take two or three years. The fields are fixed first. The fences are put in good repair. The weeds are cleaned out, the rocks picked up and hauled away, the stumps are pulled or blasted out and cleared away, the ditches and wash-outs are filled, and the fields are leveled off as much as possible. The fields are tile-drained if they need it. Then he begins on the buildings. The horse barn, stock sheds, chicken house, corncribs, and grain bins are put in first-class condition. If the buildings are very old and dilapidated, they are torn down and new buildings are built. Mr. Cavanagh does a little better than many landlords in looking after the comfort and welfare of his tenants. He has a cistern dug and spouts put on the eaves of the houses so the tenant and his family can have soft water to use. This is especially appreciated by the tenant's wife, as is the well-built chicken house.

After Mr. Cavanagh has spent two years getting a place ready to farm, a scrub tenant wouldn't have the nerve to ask for a lease on it. A talk with four of the business farmers that are on the Cavanagh farms now convinces one that up-to-date tenant farms attract that kind of tenants, and that on good farms and with a fair amount of good luck good tenants soon have places of their own.

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Dairying

Silage from Shock Corn

By Carlton Fisher

WILL shock corn make good silage and how does it compare in feeding value with corn put up green? This question has been asked many times.

When one is delayed in getting his silo completed, he can cut his corn before it is fully ripe and leave it in shocks till the silo is ready. Under such conditions it will make fairly good silage, though not equal to silage put up at the proper stage.

Occasionally more corn is raised than a silo will hold and the surplus is left in the shock till late winter when it is run through the cutter and put in the silo. This prevents the further loss of feeding value which would go on if the corn were left in shocks and also makes it more convenient to feed. But to make palatable silage from such corn about one ton of water must be put in the silo with every ton of dry fodder, and the addition of water must be uniform. If put in dry, the silage will be too dry to pack well and much of it will spoil. The success of using shock corn for silage therefore depends largely on an efficient water system.

Making American Cheese

By R. Robinson

[CONTINUED FROM THE PRECEDING ISSUE]

MEANWHILE, keep the curd warm by plugging the hole in bottom of the sink and pouring hot water under if needed. The curd should not be allowed to cool below 85 degrees when going into press, else there will be a poor rind, and the cheese, when cured and sliced, will have a tendency to fall to pieces. During cold weather it may not be necessary to have any threads show until after drawing off the whey, on account of the long cooking. But at any season when curd, after being heated for an hour or more, will show threads an eighth of an inch long which break and fly back, that means it is safe and in good condition.

On the other hand, if the threads will draw out an inch or more and then sag down at any stage of the process, it means there was too much acid in the milk, or else you have gone off and left the batch of curd too long. Then the curd will be hard and dry when cured and feel like corn meal on the tongue. So tend to the night's milk carefully and tend to the curd all through the process.

Make Bandages Smooth

When ready to press, have a bandage adjusted on a tin band in the hoop for that purpose, spread a piece of wet cotton about 15 inches square, called a press cloth, over the bottom of hoop, drop bandage in, allowing the bottom end to overlap about an inch, fill in the curd, counting 10 pounds of cheese from each 100 pounds of milk, spread another press cloth on top, and then squeeze the follower down.

If there is more than enough for one cheese when all is ready, telescope one hoop into another and press, giving an occasional squeeze until set down pretty tight. After an hour or more take out the cheese by turning the hoop bottom

side up and let the cheese drop out onto a board or table. Pull the bandage up smooth all around, and with a wet cloth lap the bandage over about an inch (it should be cut so you can do this), lay on a circle, spread a press cloth over that, turn the hoop bottom up, and push down over the cheese.

Now turn the hoop bottom down, and lap the bandage on top the same as before, lay on another circle, then a press cloth, and push the follower down. Finally press as before until next morning. Young Americas are dressed the same way. Press pretty tight and often. When cheese are taken out, the bandage should be nice and smooth, showing no wrinkles; circles are not taken off. Press cloths are washed to be ready for the next batch. Place the cheese on boards at least 14 inches wide, in a room that will stay at about 60 or 70 degrees, turning them over every morning.

If the cheese should get soft and puffy after a few days, it means that you should have allowed a little longer threads on the hot iron. Perhaps it may stand three fourths of an inch before salting. After salting the changing stops or is very slow. Cheese should feel a little springy but not rigid when pressed under the thumb, and should be just firm enough to keep its shape in warm weather. For shelves you can use any kind of boards except pine or cedar, which are likely to impart a woody flavor.

Whey is Good Hog Feed

After about three weeks the cheese will be ready to sell, but that is as young as cheese ought to be for cutting. You will find whey to be a good hog feed if fed with a little shorts, but it is not a very good feed for young calves.

When you begin to make cheese, let some one person be the cheesemaker; others may help, but only one should direct. For if all hands begin bossing one another, you invite failure. Make a practice of using your sense of taste and smell when handling both milk and curd. If you find the odor of leeks in the milk, it is of no use trying to make it into cheese.

You will be greatly surprised at how keen the senses will become with practice. By giving strict attention to the foregoing instructions you can hardly fail to turn out an excellent American cheese.

Shavings for Bedding

By B. D. Stockwell

ANY material that is clean, absorbent, and free from injurious chemical substances is suitable for bedding in a dairy barn. Straw is used chiefly because of its abundance and cheapness. But coarse hay and shavings are also used, the latter in localities near planing mills, where they may be had cheaply.

Especially in sections of the East where little grain is raised and straw is not always to be had, shavings have become a common bedding material. The chief objection to straw as a bedding for cattle is the occasional foot trouble caused by half-rotted straw getting in between the cleft of the hoof and causing soreness. This is most common when straw is scattered over a muddy barnyard. Shavings have been objected to on the grounds that the manure is not so good as straw manure because the shavings decompose so slowly.

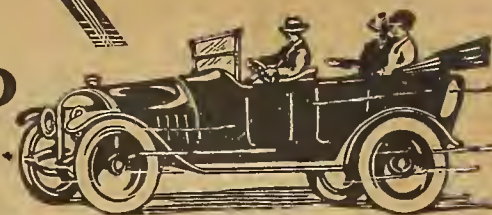
While this objection is valid for certain types of soils, such as sandy soils which are naturally dry, shavings in manure make a heavy clay soil less sticky and more easily worked.

The bedding situation is probably best settled on only one basis, that of economy, the influence on the soil being very slight, favorably or otherwise, when applied in connection with manure and well scattered.



Shavings are here used for bedding dairy cows. They are especially good over concrete floors since shavings are poor conductors of heat and cold

Let the Silo Buy the Auto



If your problem is to decide between the silo and the auto, better get the silo first. The silo will help to buy the auto; but you can never make the auto buy the silo.

A Natco glazed hollow tile silo will add 40% to the value of your corn crop. Results—bigger cream or milk checks and reduced feed bills. Build a

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"The Silo That Lasts for Generations"

Stoutly reinforced with steel bands laid in mortar. Simple in design; only two shapes of tile used; any mason can erect a Natco. Wind-proof, decay-proof, fireproof and frost-resisting. Needs no painting—has no hoops to tighten. Used and endorsed by leading Experiment Stations.

Fully guaranteed. Will greatly increase the cash value of your farm.

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Natco Silo Wall: Note perforated shell providing firm anchorage for mortar joints



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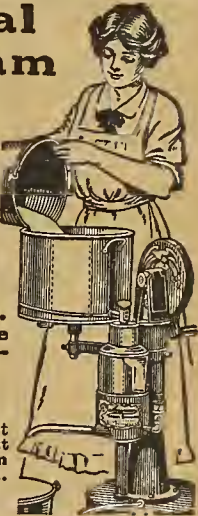
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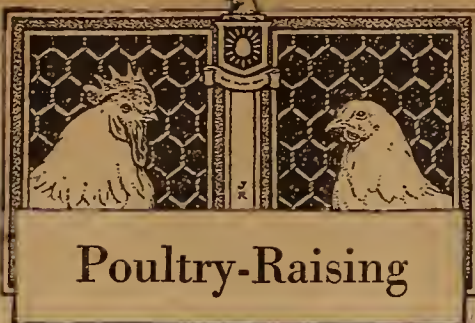
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High Dollar Hides the Hen

By B. F. W. Thorpe

HOW true the old adage continues to be that the size of a dollar often hides a multitude of more important things! It now appears that poultrymen are becoming so fascinated with the bigness of the dollar represented by the feed their poultry will consume the coming winter that many of them are closing out their stock to the last hen. From the great poultry-buying concerns comes the intelligence that many corn-belt farmers are not retaining even breeding stock for next spring's poultry operations.

A little reckoning will convince that such slaughtering of entire flocks must boost prices for first-class poultry and breeding stock so high that there will be a poultry shortage for a year or more. The cost of keeping a hen under average farm conditions does not much exceed 50 to 75 cents if inferior grain, weed seed, and stubble gleanings are made use of, as they can be. Two or three dozen of winter-laid eggs will cover the cost value of the grain consumed by a good hen. Her roughage of silage, roots, or similar feed need hardly be considered. Any hen of fairly good bred-to-lay origin given good care in comfortable quarters is good for a revenue of \$1 to \$2 in addition to her cost of keeping. Why then should an advance of a few dimes per hundredweight in the selling value of grain influence the closing out of poultry stock, including breeding birds, at the present time? Many a hen is now returning a tenth as much net annual profit as a dairy cow, brood sow, or steer. Stay by the good hen and get more!

How I Feed for Eggs

By E. B. Shaw

I BELIEVE a well-balanced dry mash to be a most important factor in getting heavy egg production. We buy the various ingredients which make up the mash, and mix them in our feed-storage room.

The average cost of these feeds from which the mash is compounded is, in our local market, through the year about as here given. When there are indications of an advance in prices we stock up more heavily.

200 lb wheat middlings @ \$1.70....	\$3.40
100 lb ground oats	1.95
100 lb wheat bran	1.40
75 lb gluten feed @ \$1.75	1.31
25 lb linseed meal @ \$250
100 lb fine beef scrap	3.00
100 lb alfalfa meal	2.00
2 lb ground charcoal10
2 lb fine salt02
Total	\$13.68
Average cost per cwt.	1.94

This mash gives the best result of any we have used, and the average cost is about 25 to 35 cents per hundred-weight lower than ready-mixed similar feeds in the same market.

For scratch feed the average cost of good whole corn for the past year is about \$1.75 per hundred, wheat \$2.25 per hundred, or \$2 per hundredweight for the scratch feed composed of corn

and wheat. Commercial scratch feed in the same market would cost us \$2.35 per hundredweight, which allows 35 cents per hundredweight for mixing, and we better know just what the home-mixed scratch feed contains and the exact quantity of each.

In the morning the dry-mash boxes are filled, and fresh water is placed in the fountain, but no other feed is given until two hours before sunset, when we scatter two quarts of scratch feed in the litter for each 25 birds.

Results are what prove feeding methods, and under the adverse climatic conditions of Maine our present method of feeding delivers the goods. Some of our best hens, which produce 200 eggs in a year (trap-nested), gave us a profit of close to \$4 each above cost of feed. For November and December eggs we get 48 to 50 cents per dozen. In addition to good and regular feeding and constant watchful care our hens are kept always free from lice and mites, and no diseased bird is permitted to remain in the flock after it is observed.

A Platform Poultry Fountain

By C. A. Quick

HERE is a drinking fountain that poultry can neither scratch litter into nor tip over. I just took a flat box and made a hole in the bottom. Then I placed it upside down on a platform over a pan of water. The hole is about six inches in diameter, a convenient size for most hens, but it can be made any size desired, according to age or breed of fowls.

This fountain will prove to be a trap for small chicks, but works well for mature fowls of all kinds.

Short Trapping Tests

By Amos L. Gridley

IS a month's trap-nest record of any value for picking out the best layers? There is good evidence that such a test indicates the hen's laying capacity in many cases, and a six months' trap-nest record will show the majority of the best layers in any flock.

In Missouri an egg-laying contest has been conducted for five years. An analysis of the records of these five yearly contests show that out of one hundred hens that stood first in egg production at the end of a year's laying, 52 per cent stood first at the end of their first month of laying and 26 per cent were second in egg production as judged by the month of trap-nesting. In other words, 78 per cent of these best layers showed their high-producing capacity at the end of a month of trap-nesting. Of course, a six months' test is more conclusive.

From the same Missouri laying-contest record it is shown that at the end of six months' trapping 92 per cent of the best layers could have been selected. The 100 highest laying hens selected at the end of six months from the four contests laid an average of 177 eggs each. The 100 poorest layers by the same selection averaged only 105 eggs per hen. Such a six months' trap-nest test therefore would have enabled the poultryman to pick out hens for breeders that would average six dozen eggs per hen more than the poorest laying stock.

A three or four months' trap test would have done nearly as well.

Many a poultry keeper can undertake four or five months of fall and winter trap-nesting, when work is less pressing, who would not consider year-round trapping.



Prize specimens of breeding turkeys which have been proved to be vigorous, free from disease, and sure breeders are held by some fanciers at \$100 apiece

"Eglantine" White \$5 Leghorn Cockerels

Big, healthy birds that will surely produce heavy-laying daughters. From the strain that produced "Queen Caroline," with a record of 510 eggs in 24 consecutive months, and the holder of the world's official record—

"Lady Eglantine"

314 Eggs in 365 Days

49 Eglantine pullets laid 11,007 eggs in one year, an average of 224 each. At little cost you can put this bred-to-lay blood in your flock through the male, the most effective way. Matings based upon accurate trap-nest records—our standards are exacting. Eglantine Cockerels will please you in every way.

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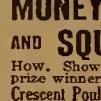
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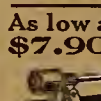
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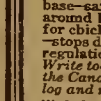


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Live Stock

Wintering Cattle

By W. H. Peters

FOR roughing cattle through the winter the best possible combination of feeds is corn silage and alfalfa hay. The difficulty is that there are very few farms where corn silage and alfalfa hay both are to be found in sufficient quantity to winter any large number of cattle.

Given a fairly roomy shed that is kept well bedded with straw, a water tank with a heater in it with which to remove the ice and take the chill off the water, and an abundance of alfalfa hay and corn silage make an ideal method of wintering a bunch of yearling or two-year-old steers or heifers or a bunch of breeding beef cows. On farms where the silo has not yet been built and the alfalfa field has not been started, the corn can be used as fodder and prairie hay can be used along with it and very good results secured with these feeds.

In order that a beef herd may prove profitable it is necessary that all the young cattle shall gain a little in winter and come out in the spring in a good, thrifty condition so that they will begin to gain at once when put on pasture. To accomplish this and get the desired result, the young cattle, especially, must have suitable shelter, though it need not be expensive, and they must be regularly and carefully watered and regularly fed an abundance of feed even though the feed need not be of the best quality.

A Profitable Sow

By Harry D. Mayhugh

I WANT to give my experience with a sow that I bought for \$25 when a gilt. She farrowed nine pigs in March, 1914. I sold two pigs at weaning time for breeders for \$20. I then sold five when five months old for \$30. When the other two were seven months old I got \$35 for them.

At this time the sow had eight more pigs, which I sold in the winter for \$75. In the early spring I traded her for another sow and got \$10 in money.

The other sow farrowed six pigs in April. One of them died when three months old. I sold the five through mail orders for \$50. I then fattened the sow, and she brought \$19. The feed bill for all amounted to \$32. The first sow cost \$25. All the expenses were \$57. The net profits were \$182.

Value of Silage

THE value of silage becomes more apparent each year. The corn that has been put into the silo when nearly ripe makes a cattle food that is well relished, has a good effect on the cattle—keeping them in good condition—but little is wasted, and it is in a convenient form to feed. Now is a good time to study the silo problem so that when you are ready to build one you will know the kind and size you want and can begin the construction in good season.



Many horse and mule feeders are using silage to good advantage in fattening their animals for market

Feeds for In-Lamb Ewes

By Daniel Prowant

I FIND that without the proper care in the way of supplying the proper foods it is useless to expect lambs to come strong and healthy. I remember one winter when crops were short and we had very little in the way of grain suitable for ewes, I thought that I could not afford to feed them any grain, and wintered them entirely on rough feed.

This experience cost money. Of all the lambs born with low vitality they broke the record. I lost nearly all of my lambs that season. Most of them were born alive, but had no vitality, many of them never getting on their feet in spite of having the best care I could give them. The ewes were seemingly healthy and in good flesh, but because of the lack of a proper balanced ration the lambs suffered.

I thoroughly believe in giving the best possible care when the lambs arrive. But this experience taught me that if the ewes were not well cared for during the gestation period the chance for saving a large per cent of the lambs is small. I have had ewes to become afflicted with distemper caused by exposure during the gestation period, and the lambs, even if they live, seldom amount to much. When ewes are housed during stormy weather the quarters should not be close and damp. An adult sheep cares little for cold so long as it is kept dry. Thus a shed open on one side large enough for them all to get out of the storm, with a good roof, is all that is needed until near lambing time.

Feeds Hay in a Rack

The feeding troughs should be large so all the sheep can get to them without crowding. I have noticed that the "boss" ewe that always holds her place till every bit of feed is gone usually has the nicest lambs. Feeding at regular hours is just as important with sheep as with other animals. I also feed hay or fodder out of a rack. In this way none of the feed will be wasted as it would if fed on a floor.

I give but little corn to in-lamb ewes. It is better than no grain at all, yet if other grain can be fed I think corn to be a little too fattening to feed heavy ewes as a part of the ration. I feed a good deal of silage, and for a good feed and yet economical I have not found its equal.

I give it to them rather sparingly at first, however, and it must be perfectly sweet and free from all trace of mold. The proper amount after the ewes become accustomed to it is one-half bushel for each eight ewes, fed night and morning. I also feed one pint of oats a day to each ewe, fed at noon.

For rough feed I give clean clover hay or good, bright corn fodder, whichever is handiest. I always let the sheep go to the field during the day if the weather is fair. They need the exercise, and are able to paw some grass from under the snow, which they relish very much.

Water is very necessary to sheep during the winter months. Don't get the idea that they can eat snow enough to get all the water they need. Water is even more necessary during winter than in summer months, as being on dry feed the bowels are more costive. Salt is also very necessary in winter, as well as in summer. However, I never like to use table salt or even barrel salt for stock. Rock salt is much superior for this purpose, and many of the medicated salts on the market are even better.

I find, however, that to get good results from medicated salts it should be given as part of the ration.

A Hog At His Best

He's never at his best if he's wormy. Neither is your other stock. Worms distress animals, retard thrift, bring on contagious diseases. Get rid of worms.

Dr. Hess Stock Tonic

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I tell you it pays to condition your stock now, in midwinter. Use Dr. Hess Stock Tonic and clean out their systems, purify the blood, then they will eat with a relish and digest their food. Buy it from the local dealer—the man you know in your town.

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Smaller packages as low as 50c (except in Canada and the far West and the South).

My Guarantee

So sure am I that Dr. Hess Stock Tonic will positively rid your hogs of worms and keep your stock healthy and vigorous, that I have authorized my nearest dealer to supply you with enough for your stock, and if it does not do what I claim, return the empty packages and get your money back.

Write for Free Stock Tonic Book

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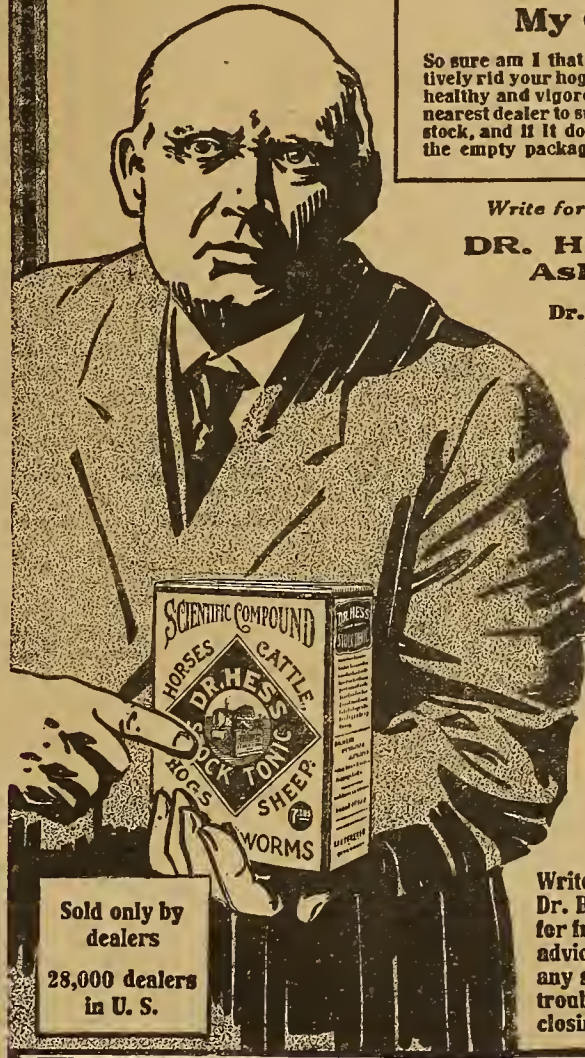
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154 Elm St., Marblehead, Mass.



Garden—Orchard

How I Bought Experience

By E. Quinn

WHEN commencing to farm I gave no thought to the matter of adaptability of crops to soil and location, and planted my young orchard on low, level land. The result was a failure. Then I planted my hilltops to apples, peaches, pears, and plums, and am beginning to reap success from my orchards thus located. I find that the trees planted on the hillside are injured but little with frost. I have since learned that the frosty air settles to the lower levels the same way that water runs down-hill. Experts call it atmospheric drainage.

I find that my orchard on the high lands now escapes frost where the fruit blossoms are all killed on the low lands. I was first impressed with the location for orchards when visiting an expert orchard man in charge of large orchard operations in New York State. Had I got this information when I first went to farming I should now have a good paying orchard. But with the helps I have got from various sources since, I now expect a paying orchard investment from now on.

My Seed Side Line

By Bettie H. McDonald

LAST winter I tried a little business deal in garden seed and plants from the advertisements of seedsmen in the columns of FARM AND FIRESIDE. I selected various kinds of seed and bought a moderate supply. From one packet of cabbage seed planted in March I secured over twelve dozen plants. I grew them in the kitchen window. As soon as two leaves appeared I transplanted them into the garden under a glass jar, putting from five to ten plants under a jar. When the leaves began to crowd I planted them in the open. I sold all but three dozen plants, kept for my own use, at the rate of 10 cents a dozen or two dozen for 15 cents.

It is not too early to begin to plan next year's garden. Study the seed catalogues and visit the homes of the best gardeners you know, and learn what you can from them. Get ready in time to allow of the garden being prepared for before rush work begins in the spring.

January Lettuce Under Glass

By Harry B. Potter

"HOW much lettuce will you retail on the city market to-morrow?" was my question as I watched John Graeber at work in his half-acre greenhouse near an Ohio city of 50,000. Our conversation took place on Friday preceding a market day in the last part of January.

"Oh, about 500 pounds, I suppose; but we have to cut much more, for there is a wholesale demand that we try to supply. Just now it is hard to get enough

lettuce. This lettuce retails at 20 cents a pound."

Just then he finished filling one of the baskets preparatory to sending it to the room where the lettuce is prepared by washing for the market. It was clean and uniform, true Grand Rapids Early. I was particularly interested to know the fertilizer he used, and the methods he employed to keep down disease with crops grown under such intensive conditions.

"We want no fertilizer better than barnyard manure, and we use lots of that. And as to diseases, we have had no trouble. We have been under glass hardly two years yet. After we have been growing crops on this soil for a number of years I suppose we shall have to sterilize it and use other preventive measures, but just now we are safe."

And then, lest I myself rush into a business so wholesome and profitable, I remembered that this had taken years of patient effort on high-priced land, with the help of his three sons, his wife, and sometimes an extra man. He was in his greenhouse a highly developed



This is a bushel of lettuce! He doesn't sell it by the bushel measure of this size, but at the rate of 20 cents a pound, or over a cent an ounce

system of watering pipes, compression tanks, engine, and nozzles, all of which involve no little investment. Besides he has a knack and liking for the work, which after all are probably the main reasons for his success.

After getting acquainted with the operations followed in this greenhouse business, I am more than ever of the opinion that growing vegetables under glass is going to make great strides near every big town and city.

Beans are Gold Nuggets

By Allen J. Titus

WHERE snap beans are grown in quantities by market gardeners, there are sometimes considerable quantities which get too far advanced for marketing as green beans. Many of these left-over beans are at times allowed to go to waste. At the present high prices all kinds of beans are worth saving.

The wax beans shown in the picture bring \$4 a bushel, which is a good inducement for the sheller to employ the stormy autumn and winter days getting these beans ready for market. Where many of the beans are discolored and unsalable, sorting and hand shelling is found to give better results than mechanical shelling and afterwards picking out the imperfect beans.



Hand sorting damaged beans is not a get-rich-quick job, but there is good stormy-weather wages in it

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Crops and Soils

Fertilizer on Beets

By R. E. Rogers

IN 1915 I sowed two acres of sugar beets. The rows were 48 rods long. Under all of the field except the first four rows I used 200 pounds to the acre of a high-grade fertilizer.

The beets in the fertilized part of the field came up four days earlier than the four unfertilized rows. They grew better all the season.

Besides, there was only about one third of a stand on the unfertilized four rows. The foliage was a light green, the difference between this and that of the fertilized part being plainly seen from some distance. The roots were considerably smaller than the others and were pretty prongy. This made some trouble in weighing and allowing for dirt since the prongs would tend to hold the dirt with the beet and because of the dirty-looking outside the weighman would naturally make a greater deduction of tare.

To the row of 48 rods there was a difference of 600 pounds in yield between fertilized and unfertilized rows at harvest time. This would make a total loss of 2,400 pounds for the four unfertilized rows. Now if you will figure that it takes 30 such rows 24 inches apart to make an acre and that the amount of fertilizer saved by leaving these four rows was about 26 pounds, we will have a little chance to see that the grower got big returns by fertilizing the entire field. The extra 2,400 pounds of beets on four rows at \$5 a ton, which is the contract price here, makes a little loss of \$6. The amount that the fertilizer would have cost for the four rows was about 35 cents. Taking that away leaves us the difference between a profitable crop and one that surely is something else.

To Get a Stand of Clover

By James Coleman

WHERE both barley and oats are grown, barley is recognized as the crop best adapted to nursing an oncoming crop of clover. This is because the barley has a foliage that is not so dense, and because the plants are shorter, both facts permitting more sunlight to get to the legumes at the surface of the soil. Notwithstanding these facts the greater demand for oats as a grain crop persuades many a man to sow oats with the hope that as good results may be expected from the clover at the same time that more profit comes from the grain.

Sometimes thought along this line results in a seeding of oats much too heavy, and the clover which tries to grow fails because of lack of sunshine and moisture. The early cutting of the oats for hay may save a part of the field of clover, or perhaps even all of it.

But the greatest gain will come in the insight which a study of the crops now will give to the farmer. Plants this year can be changed; perhaps a lighter seeding of oats will give the hoped-for results in grain and clover. But when both crops are desired both should be considered at seeding time. You cannot expect both a full crop of oats and a good growth of clover.

Run-Down Farm Built Up

By T. E. Lott

TEN years ago Rosedale Stock Farm was a run-down cotton farm; last year we produced 100 bushels of corn on one acre with our entire crop, 50 per cent better than it was even six years since. Ten years ago we used six tons of commercial fertilizer, last year we used less than one ton. How have we brought about this change? By feeding live stock. Rosedale Farm has 250 acres: 70 in cultivation, 30 in lespedeza pasture, 100 cut-over land with native grasses for pasture, and 50 in swamp and other timber.

When the boll weevil first appeared, in south Mississippi, we decided there had to be a change made, so we decided on the breeding of pure-bred hogs and poultry. We kept the native cattle on account of the Texas fever tick, but we shall be rid of the tick and released from quarantine within two years, then we shall breed registered cattle.

At the start we cut our acreage of cultivated land 20 per cent, cut part of the farm up into pasture, and applied all manures to the land as made. We raise corn, oats, and cotton in rotation, besides potatoes, melons, etc. We follow oats with cowpeas, soy beans for hay, and peanuts and sweet potatoes to be harvested by the hogs themselves. Then sow some winter pasture crop, as crimson clover, bur clover, or oats.

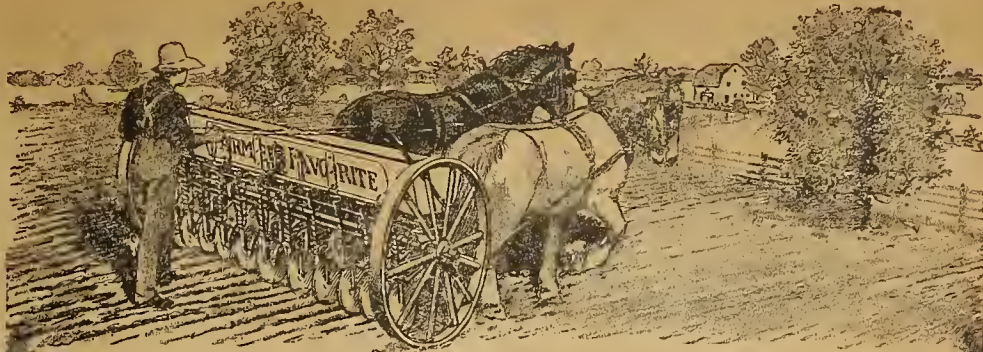
The Part Velvet Beans Play

After hay varvest we haul all manures out on this sod and turn in the spring for corn. We plant velvet beans with corn or at first cultivation. These make a dense growth, and furnish grazing for cattle, hogs, and sheep all winter, as well as to gather nitrogen from the air and store it in the soil for the next crop. A complete fertilizer is not needed for the cotton crop, as we already have all the potash needed in the soil and have by the help of legumes stored sufficient nitrogen for the cotton crop. We, therefore, only use acid phosphate to furnish the needed phosphoric acid. We make from one-half to one and one-half bales of cotton to the acre. As we make all the meat, lard, etc., that we can use, and some to sell, and make all feedstuffs on the farm, the cotton crop is clear profit.

Our plan for building up land to secure high yields of corn is to break the land deeply and apply stable manure. By applying the stable manure generously this treatment quickly brings the impoverished land back to its best again. The difference between the heavily manured land in corn and the general run of our land before it has been brought up with stable manure is shown plainly in the yield as above referred to. Three acres thus built up gave a yield near the 100-bushel mark, and the average of the fields not so treated was 20 bushels an acre on land of practically the same natural strength.

When we sow oats in the fall and pasture them off in the winter, we get an average of about 40 bushels to the acre, but from our best acres we have averaged as high as 50, 60, and even 80 bushels of oats an acre. Last winter the oats were winter-killed and yielded only 25 bushels an acre.

The best permanent pasture plants we have are Bermuda grass and bur clover. The clover reseeds itself, and is ready for grazing by the time the Bermuda begins to fail in the fall, and the Bermuda grass is ready for grazing again in the spring when the bur clover goes to seed. But oats are the best winter pasture we have found yet. They give plenty of grazing and are fine for stock. We take stock off the oats in March, then harvest a fine crop of oats in May. We then let pigs pick up all shattered grain before preparing land for summer crop.



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Believing a bird in the hand is worth two in the bush, these wheat farmers hauled the greater part of their grain to market last fall

In which Leslie Brennan tries to choose an occupation and discovers that she is a rather useless little person

The Blue Envelope

A Disillusioned Butterfly Enters the Workaday World

By SOPHIE KERR

PART II

WITH that, I turned my back and walked away. He started to say something, I don't know what. And then he started his car, and, more quickly than I can say it, he was gone.

Well, I turned and looked after him. There was nothing to see but a cloud of dust. I could hardly trust my own senses—I could hardly think it real. Had he only wanted to marry me because of my money? It was the first time that anything coldly mercenary had ever touched me, and it made me feel afraid—a very small, frail thing in a world where unthinkable baseness masked itself as something fine and beautiful and nearly, very nearly seized you. I could feel the tears close behind my eyes. And then I—well, I threw back my head and *laughed*, laughed as hard as I could and spoke out loud in the silence. "I'll laugh," I said; "I'll laugh at everything. I won't be such a silly as to cry about a pig like Randall Heeth." I set my chin obstinately and began my walk, as fast as I could. I soon began to wish that I had quarreled with Ranny nearer town, for I couldn't get on very fast in high-heeled pumps, and no one came by whom I could ask for a lift. It did seem as if too many things were happening at once, and not at all as I had expected.

It wasn't such an unpleasant walk, only I didn't sufficiently appreciate the purple asters and crimsoning sumac and the warm October haze that hung over everything. I tramped along very determinedly, and finally I reached a crossroads and heard the rattle and bang of a far-off trolley car. Then I saw those blessed old ugly trolley poles and grubby little shed station, and I ran for it. Luckily, the car was going into town, not out, and I climbed aboard, thankfully.

I say thankfully, but all the time I wished that the car would run away into the wilderness and take me with my hurt pride and humiliation with it. I wouldn't have cared if it had run off the track, I thought dreadingly. Here was I, Leslie Brennan, only an hour ago a very happy, care-free person, without a real trouble in the world, engaged to the most attractive run-after man—oh, when I thought of Ranny how I wanted to cry, but I wouldn't—and now! I just ached all over with misery. If Mrs. Alex had only been at home I would have gone to her and told her everything, and she'd have planned something, and she'd have told me what to do, and she'd have mothered me and petted he and helped me to—oh, how I did want to cry! Yes, I wanted to cry and kick and scream and bang things around, too. I wanted to hurt somebody the way I had been hurt.

What was I to do? Then I thought of Uncle Bob. Why, this meant that I'd have to follow Father's plans for me; I'd have to go to learn some tiresome, miserable old work, and drudge for two long, long years. That was just the last touch of unfairness, it seemed to me. It meant giving up my debut and all my good times and my youth—no, it wasn't fair, even if my dear father did plan it. He didn't know how things were going to be with me—he couldn't.

Then slowly, slowly, out of the hurly-burly of worrying thoughts that were just tearing my head apart, I began to see that the only fair thing to do was to go straight back to Uncle Bob and tell him the truth about Ranny. I hated to do it; I felt as though I couldn't, possibly, not to save my life. But, on the other hand, it wasn't square to do anything else. I argued myself round and round and round a hundred times before I could make up my mind to do it. The bumpy little old trolley was almost in town before I decided, but as a last sop to my pride I made up my mind that when I told Uncle Bob I'd tell him very gayly and flippantly, so that he would never guess how torn and bleeding my feelings were inside.

I went right straight to Uncle Bob's office. Miss Winch was still making notes out of those same big law books—why, it seemed endless years to me since I'd been there. And she looked up and said, "Oh, Miss Brennan, wait just a moment, please. Mr. Par-

sons wants to see you before you go away again."

That seemed odd—had Uncle Bob expected me to come back? I didn't ask—I just dropped into a dispirited heap and waited while she told Uncle Bob I was there.

"You're to go right in," she said, coming back.

With all my strength I pulled myself together and walked as unconcerned as I could. I sat down before the big desk and smiled at him cheerfully.

"Well, Uncle Bob," I said saucily, "you were right—isn't it funny?" And then it was all no use. I put my head down on the desk and began to cry just as hard as I could cry. I cried so hard that it was quite a while before I could feel the contrite pats Uncle Bob was bestowing on my back, and when I finally could hear anything but my own sobs, he was saying:

"... blame myself severely for speaking to you as I did. . . . I should have remembered your youth-

tion we both felt better. I bathed my eyes and Uncle Bob held a glass of ice water for me to drink, as if I were a baby. He was very dear and kind.

"So I'm not engaged, Uncle Bob," I said when we were all calmed down again. "And I think, perhaps, I might like earning my living after I learn how. But please let's pick out something for me to do that doesn't take awfully long to learn. I don't want any four-year courses of things, for you see if I studied for four years and then earned my own living for two years more, I'd be twenty-four—almost too old ever to enjoy anything again."

Uncle Bob smiled and patted me some more.

"WHEN you are fifty-eight, Leslie," he said, "twenty-four will seem very young to you. But from the viewpoint of eighteen it may appear almost middle-aged."

"Not quite middle-aged," I said, "but anyway getting serious and stiffy, and not liking to dance, and—oh dear, this isn't choosing how I'm to earn my own living! I wish I were clever, then I'd be able to do almost anything without half trying. But I don't know enough to be a teacher, or a cook, for that matter. I don't think I'd like to work in a store, Uncle Bob. And I'd hate to be a trained nurse—it takes years to learn. Why couldn't I learn stenography and typewriting and go and be a secretary, like Miss Winch? Just writing letters and putting around an office a few hours a day—it can't be such awfully hard sort of work. Father didn't want me to learn such an awfully hard sort of work, do you think, Uncle Bob?"

"You don't need to decide to-day, Leslie," said Uncle Bob, which was certainly a comfort. But then something else unpleasant occurred to my mind.

"I do wish," I said, "that I didn't need to go back to the Morrisons. Claire and Helen will know something's happened, and they ask so many questions, and I don't feel what you might call composed yet. It's been—a day!"

Uncle Bob banged the desk with his hand. "I very much prefer that you shouldn't return to the Morrisons," he said. "If Mrs. Morrison's discretion were equal to her social standing—" he stopped and shook his head. "My dear, I shall take you home with me, and there you shall stay until we hear from Mrs. Alexander."

"Exit Leslie the butterfly, and enter Leslie the poor working girl," I said to Uncle Bob as we left the office.

After the tumultuous breaking of my engagement to Ranny Heeth, Uncle Bob's house seemed a peaceful haven of rest. He has such quiet old servants, who move silently about and think of everything you could possibly want long before you can think of it yourself. The walls of all the rooms are so high, and the furniture so dark and mellow, the lights so shaded, and the chairs so deliciously comfortable that it made me think of the men's clubs when you peep into their big windows in the early evening. Oh, I loved it there—for a few days!

But it was too radical a change after the Morrisons, with all the gay times and crowds of people coming and going, and no sooner was I over the worst of my feeling sore and sorry about Ranny than I began to be restless too. "What now?" I kept asking myself. And I longed for dear Mrs. Alex to come back, and help me straighten myself out again, for indeed I felt terribly snarled up with life.

Then, again, the unexpected happened. Mrs. Alex wrote, most distractedly, that though they thought her sister would recover, it would be months and months before she was well again, and she felt that her duty was there. She must take her South for the winter. But what would become of me? That was what worried her. She wrote to Uncle Bob and me, both on the same mail, and we exchanged letters while we were having breakfast—French crescents and marmalade.

"Write and tell her," I said grandly, "that I'm going into a business career and [CONTINUED ON PAGE 19]



By permission of Vitaphone Film Co.

"Father didn't want me to learn such awfully hard work, did he, Uncle Bob?"

. . . so many things to worry and harass me . . . my dear child, that young whelp isn't worth a thought, let alone your tears . . . do, do, my dear Leslie, try to stop crying . . . you distress me beyond words. . . ."

AND the next thing I was leaning against his shoulder and talking just the same way. ". . . I was going to be so brave and carry it off so well . . . I don't know what makes me cry so, Uncle Bob . . . I don't really care as much as I sound . . . Only Ranny is so different from what I thought he was . . . and I was so disappointed . . . and ashamed ever to have thought I was in love with him . . . and I'm so silly . . ."

After which mutual explanation and self-accusa-

What Has Gone Before

READ THIS BEFORE YOU BEGIN THE STORY: Leslie Brennan, orphan heiress, at the height of her enjoyment of the gay social life at the Morrisons, becomes engaged to Randall Heeth, whom she describes as a "regular man of the world." Her guardian, "Uncle Bob," is furious, and declares that Heeth only wants her money, and that if she marries him she will receive an allowance of just enough to exist on for seven years. He tells her it was her father's wish that she learn some profession and fit herself to earn her living. Asserting her faith in Ranny, Leslie flings herself out of the office and down to where he is waiting for her in his car, and they speed out into the country. When she tells her story she finds that "Uncle Bob" was right, and gets out of the automobile, saying she would rather walk back to town than ride with Ranny.

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A "lifer" in Sing Sing, though innocent, Shorty Condon is borne up by the faith of the girl he loves. This part ends the story

Miracle Mary

When the Impossible Happened on Christmas Day

By JOHN A. MOROSO

PART II

FOR the third time Shorty Condon left the train at Ossining, chained to a string of convicts, and began the journey up the steep road from the station to the prison. The court had given him the limit, and with that terrible economy of soul which is a part of the last outside moments of the "lifer" he would turn frequently and glimpse the open road, dust-clouded, as it lengthened behind him. Skies, fields, highways, and the clean air of the open were to be shut off from him forever.

In Sing Sing he would come to envy those prisoners clustered in cells close to the little green door masking the electric chair. The merciful process of being "put through the wires" was not for him. His was to be a death by inches in foul air, ending in a grave filled with quicklime. The agony of a living death was to be long drawn out, but the dead body would be quickly destroyed.

A little bundle of underwear dangled from Shorty's right hand. His only other possessions were Mary's own Bible and the faith that had come to him with the words of the sidewalk soldier of Christ in Chatham Square, a faith still strong within him, strong as the living rock.

With the others, Shorty was put under the shower, examined by the prison physician, and handed a baggy gray suit. He was tabbed on the left arm with the red disk of the third-term man and assigned to the machine shops as an unskilled laborer.

September, October, and November passed, and Shorty drew near to the first Christmas morning that had ever meant anything to him in prison. As he read his Testament and the Christmas time approached, the solemn significance of the Yuletide, the birth in the stable at Bethlehem, the bearing of the Cross to Golgotha, the cry: "Eli, Eli, lama sabachthani?" (My God, my God, why hast Thou forsaken me?) became more deeply impressed upon his mind. He appeared an abstracted man, one with eyes that saw not and ears that heard not. His fellow convicts began to look askance at him and to tap their foreheads when he passed.

Shorty served three months with perfect conduct, and was thus entitled to receive a letter. It was given him. He placed it close to his heart and kept it there until the hour after supper mess, when he could read it in his cell.

His hands trembled as he drew forth the pages and his lips lingered upon the folded sheets her hands had touched. Shorty pressed close to the steel door of his cell, held up the letter to catch the light from the corridor incandescents, and read:

DEAR, DEAR JOE: I have good news for you. I have been busy getting my commander interested in a Sing Sing revival, and we have secured permission to hold services in the prison Christmas morning, afternoon, and evening. We shall be together nearly all of Christmas Day. The prison superintendent will allow us to take in anything we want in the way of gifts, and even the life-term men are to be permitted to see the vaudeville show after the evening services. I am going to bring you a lot of presents and good things to eat.

Now, Joe, I am going to tell you something that will be even better news for you and for me. I have been praying day and night for God to help us, and during the past week a strange feeling came over me that my prayers were already answered. Just how the Merciful Father in heaven is going to break the bonds that bind you I do not know, but I feel that He is going to bring about the miracle. You may think that I am too hopeful; but, sweetheart, I know that it is going to come to pass. God does not forget the innocent or neglect those who put their trust in Him. This feeling that my prayers were answered first came over me as I was holding a meeting on the very corner where we first met. When I got back to barracks I went to my room and opened the Bible. The first chapter that struck my eyes read:

"Then shalt thou call, and the Lord shall answer; thou shalt cry, and He shall say, Here I am."

I knew then that this was a token and a sign. I know that the miracle will come about. It is, it is, it is going to come about, Joe. God has heard us. Something is going to happen. I only pray and hope that it will come on Christmas Day. Soon we are going to be together again and be married by our brave general, Eva Booth. We will both stay in the Army and under the flag we love, the flag that takes Christ to the down-and-outs. Remember how that flag came to us and saved us both and saved us for each other.

I will have charge of the Christmas services and will stay for the vaudeville show and until the last minute. There are to be songs and sketches by the prisoners, but I guess you know all about that. A moving-picture company in New York has offered a fine lot of movies for the show and will send a man and a machine. Although you will be behind the bars you will see all that is going on in the outside world. Now isn't that almost a miracle in itself, Joe?

I am well and counting the days to Christmas. I shall come to Ossining Christmas Eve night so as to be near you. Good-by and remember me in your prayers. MARY.

The signal sending the men to bed sounded and the tier wardens began their inspection. As the hand electric lamp flashed into Joe Condon's cell the war-

She flung wide the banner of the Lord, her voice uplifted in a cry of glorious triumph: "The Miracle!"



den beheld him on his knees. The convict was trying to express to God his gratitude for the love and faith given him by the good woman whose thoughts and prayers kept clean his battered soul.

Sergeant Mary Meakins started from the village of Ossining at the coming of Christmas morning. The snow covering the highway which overhangs the Hudson and which leads to the gray city of despair had frozen during the night, and as she trudged sturdily onward the thin crust broke under her heels and set up a pleasant, crinkling tune.

TO HER right and below stretched the river, a wide ribbon of tarnished silver spotted here and there with ice floes broken from the sheltered places under wharves and in docks. The eastern sky was a sheet of pale gold and faint blue that suddenly took on dazzling brightness as the sun topped the horizon.

The soul of Mary Meakins sang a hymn of praise-giving as she made her way along the lonely road toward the imprisoned man she loved. Her gray eyes, like twin stars, shone softly as they looked up to the sky, and in her face was the light of holiness. She

reached the prison gates as the men were being marched from the tiers in long gray battalions for the morning mass. She roused a dozing turnkey and was admitted. The warden and deputies there seemed to have caught the spirit of generosity that marks the anniversary of Christ's nativity the world over. She was invited to the breakfast table of the chief prison official, and there she told of her special interest in Convict No. 61,218. With the fervor of a zealot she told the warden of her full belief in the innocence of Shorty Condon. After breakfast the warden had the prisoner brought to his office and, with a cheery smile, told the lassie that she could have him as a Christmas present for all of that day.

An early train brought Mary's little band of men and women soldiers from New York. With the flag of the Army they brought a bass drum, a tambourine, and a guitar. With Sergeant Mary in command they marched to the quadrangle to receive a Christmas surprise. The prison band of musicians was waiting for them, the director with upraised baton.

DOWN came the baton and forty gray-clad musicians sounded with a splendid martial blare of horns and rattle of snare drums the stirring old march, "Onward, Christian Soldiers." The music sent the blood coursing through the veins of Sergeant Mary, and her face became filled with the blush of roses. As the Salvationists marched into the chapel behind the band many convicts recognized the little sergeant.

"That's Mary all right, Miracle Mary," was the whisper that passed. "Take a tip from me," advised a second-term man, "she'll be talking miracles in a few minutes. She believes in 'em. She's bug on that and thinks they can happen any old time."

Shorty, by her side, was in the seventh heaven of delight. His voice was raised high in the song of the Army, and from time to time he would hold aloft Mary's Bible so that his fellow convicts might see that his faith was whole.

A half-dozen recruits to the Cross were gained in the morning service, and another half-dozen in the afternoon. After supper, Mary offered a prayer in the mess-room, and then they marched to the chapel for the evening's show.

Mary, her soldiers, Shorty, and the twelve recruits were given seats together. An overture of light and gay music started the entertainment, and then the curtains were drawn in front of a stage erected at one end of the hall.

Izzy the Dip had the honor of appearing as the first performer. He was announced as the Wizard of Wizards, and with his facile fingers that had traveled in and out of many pockets before he was landed in the police net he performed wonders with cards and coins. An undersized but lithe and slippery individual, he delighted the convicts with his capers and his mastery of black art. He juggled furniture and gilded balls, kept six eggs going in the air without cracking one while he balanced a lighted lamp on his sloping brow, and did so many astounding tricks that his audience roared its delight.

There followed a serio-comic sketch by four prison actors in which the right triumphed and the villain of the piece died in a fit, the actor playing the villain throwing the fit from one end of the stage to the other, to the intense excitement on part of the convicts.

Bill the Butcher, in for manslaughter, a tall, gaunt creature with a scarred and forbidding countenance, sang in a sweet and true tenor about a cottage covered with roses and mortgages and the poor widow who was about to be turned out when along comes her son with scads of lucre. The ballad was written by a staff poet of the "Star of Hope," the prison journal, and a roar as if from a brigade making a charge on the field of battle gave full evidence that the audience liked it.

There were loud cries for "Silver Threads Among the Gold," and the Butcher sang it so tenderly and beautifully that the great gray army packing the chapel held its breath. With the last note the uproar started again and the Butcher had to repeat the song. Many a convict's thoughts went back to a home long lost, and until then forgotten, as he sat and listened

to the never-fading song of long ago. Mary and Shorty sat together, the furred flag of the Army across their knees, their hands tightly clasped, both enjoying the amateur vaudeville as children would have enjoyed it.

Then came the great treat that was to close the show and bring an end to Christmas Day. There were men in the audience that had been away from the outside world for thirty years. The outside world was to be brought to them by the "movies." A cheer of welcome went up as a white curtain was dropped over the stage and a circle of light struck it.

A comedy and a melodrama were given from the films, and then began the news service afforded by one of the most important of the film makers in the country.

The convicts beheld scenes of flood and fire as they had been enacted in actual life, a splendid military pageant, the launching of a battleship, and the street life of New York, London, Berlin, Paris, and other cities the world over. Land and sea having been traveled, the "movie" man announced in a bulletin flashed to the sheet that the final pictures would show the progress made in aerial exploration.

"Splendid flights of aviators at Hempstead Plains, Long Island, June 20th," read a bulletin.

Shorty had begun to lose interest as the time for parting approached and his head was bowed low against the back of the bench before him. He held Mary's little hands in his and was pressing them to his lips.

The film showed the crowds about the hangars, the special police driving them back so that the machines might be brought to the field. A biplane shot aloft, and then another, and the audience watched, spellbound, as the two machines soared through the air in exhibition flights. Then a third machine was pushed from its hangar and a group of men having it in charge worked up to the foreground of the picture and, evidently, close to the cinematograph camera. The foreman of the gang raised a hand and beckoned to someone on the edge of the crowd. The machine seemed to have become stalled in a strip of torn ground.

A short, heavily built, and poorly clad man made his way to the foreman in answer to the summons. Every feature of his face was sharply outlined. For a moment or two he stood staring straight out at the audience as the foreman talked to him.

There was a hum of whispers in the audience.

"There's Little Joe, all right," one convict said to another.

"It's Shorty, Little Joe. Must have been just before he was pinched. Ain't it wonderful?" ran the whispered comments.

Shorty heard his name whispered and looked up just as the two little hands he had been holding were whisked from his and the flag of the Army swept upward from his knees.

MIRACLE MARY was on her feet, her face as white as chalk, but a light that fairly blazed shining in her eyes. She flung wide the banner of the Lord above her blue bonnet and her voice uplifted in a cry of glorious triumph:

"The miracle!"

Again her voice lifted, shaking but carrying to every corner of the great hall:

"The miracle!"

Sixteen hundred convicts turned at the strange cry and looked at the girl waving her Salvation Army flag above them. They shifted uneasily and their exclamations of astonishment made a rumbling sound.

"The miracle has come," shouted Sergeant Mary Meakins. "There it is in the movies! You all saw Joe Condon there and the date is June 20th. God promised me to save him. He has saved him. The pictures prove his alibi. All the people there with him prove that he wasn't lying when he was on trial. Oh, praise God for His mercy! Oh, p-r-a-i-s-e—"

She fell back in Shorty's arms in a faint of happiness and religious ecstasy.

Holding Mary tight to him, Shorty stood, staring at the screen, stricken dumb and sent reeling with joy at this strange play of fate. He saw the crowds shifting about the field and the aeroplanes landing with many a bounce.

Among the thronging spectators, he saw himself now here and now there in his humble pursuit of odd jobs, and he knew that the official records of that day's aviation events would prove beyond question that it was impossible for him to have been anywhere near Riverside Drive and the Hartley residence when it was broken into and robbed.

When Mary regained her senses she put her arms about Shorty's neck and cried until she found relief from her

over-abundance of joy. The warden rushed to the group of Salvation Army soldiers, not knowing what all the excitement meant.

Mary and Shorty told him and, still in his Christmas mood, he promised to send the news to the governor by telegraph that very night.

The convicts were falling in line as the words "Good Night" were flashed to the curtain and, as they completed their tier formations, the news of Shorty's deliverance passed from lip to lip.

"I says three cheers for Miracle Mary!" called a voice, and the cheers were given as the men moved on their way to their cells.

Mary was promising Shorty to be back at the prison in the morning to get him or to wait until his release was signed, when one of her convict recruits touched the warden on the arm and said:

"Say, Warden, don't you think you'd better put Shorty's film in the office safe to-night? There ain't any thief would steal it if he knew what it meant to a 'lifer'—anyhow no thief present would—but it might be best to be on the safe side."

The Blue Envelope

[CONTINUED FROM PAGE 16]

she need worry about me no more. And I'll write too, and explain that if she ever needs a private secretary she will find me a competent and able young person."

I had better confess that I didn't feel half as gay as I talked. I felt like a nice little house cat who has always had a place by the hearth and a pink ribbon and lots of cream, and is suddenly commanded to become a large and efficient and self-sustaining watchdog. I wasn't the least interested in being a business woman.

I had rather snobbish feelings about girls who worked, and also, away down deep inside of me, I suspected that I might easily turn out to be a great deal less efficient than the most of these girls on whom I looked down. Take Miss Winch, for example. I had always rather prided myself on being "pleasant" to her, but in honesty I had to admit to myself that she could do millions of things that I didn't believe I could ever learn. Along with all these horrid feelings, I felt that my father shouldn't have demanded that I earn my own living, and I was resentful that Uncle Bob thought he was right. Oh dear, those were the most unhappy days I ever spent! I tried to hide by thoughts and feelings from Uncle Bob, but I know he guessed how I felt.

One thing I insisted on, and that was that I should not have to learn my work and then go to work right here at home. It took considerable argument, but at last Uncle Bob gave in that I might go to New York, for I told him, at last: "I'll rebel. I won't even try to learn anything if I must stir up all this comment and gossip here in town among the people who know who I am."

"You're very foolish, Leslie," said Uncle Bob, "and very much too conscious of yourself. People won't pay half as much attention to you as you think."

At that I burst into floods of tears and just raved. Finally Uncle Bob gave in, though I'm sure he wrote to Mrs. Alex first to find out what she thought. Heaven bless her, she stood by me, and it was decided as I wished, but I had to promise to go to one of the boarding houses on a list that Uncle Bob got together for me. He wouldn't hear of my trying any of the studio clubs, and I wouldn't go to the Y. W. C. A. So we compromised on these boarding houses.

Now appeared a new difficulty—to me, at least.

"You are to have," announced Uncle Bob, "fifteen dollars a week to live on until you are able to begin earning money. Your tuition at the business school will be paid, but that is all. After you get a position your allowance will only be five dollars a week, which amount represented, to your father, an equivalent of living at home, which helps out the average small-salaried girl."

And my personal allowance up till now had been fifty dollars a week, and there were lots of extra bills that Uncle Bob had always paid without a murmur! How could I do it? Then something I heard Ranny Heeth say to another fellow flashed into my head. Ranny had said: "Brace up. Be a sport." It fitted my case perfectly. I'd try it out. I'd be a sport. But it was a very sober, scared Leslie Brennan that got on that New York express and waved good-by to Uncle Bob. It was a satisfaction to see that he looked sober and scared too.

[TO BE CONTINUED IN NEXT ISSUE]

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AFTER experimenting for some time with the various methods of washing recommended by acquaintances, I finally evolved a system which is a composite of the best features of other people's methods and some ideas of my own.

In the first place, I have at hand for this work all mechanical aids possible where there is no electric or gasoline power on the place: an excellent rotary washer, a good wringer, a copper boiler, galvanized tub for rinsing, a wash bench that isn't "tippy" and is the right height, and plenty of wire line stretched so that some parts of it catch the prevailing wind while others are protected from it.

I always soak the white clothes in cold water, and preferably overnight, both because I find that this lessens the actual work on washday in saving time spent in putting clothes to soak, and because clothes which have soaked overnight require very little washing to make them perfectly clean.

Each piece is soaped and all soiled parts rubbed on corrugated sides of washer at time of soaking. After all of the clothes have been put to soak I add to the water a few lumps of sal soda, which loosens dirt, whitens clothes, and helps take out stains. It is very unusual for a stain to appear on a garment fresh from my clothesline, and this I attribute to my plan of soaking in cold water with soap and washing soda.

On washday the clothes are wrung out of the water they soaked in, and the washer emptied and rinsed; then the least soiled pieces, such as table and bed linen, are placed in the washer and over them is poured a boilerful of very hot water in which has been dissolved a bar of soap and a tablespoonful of washing soda. Usually ten minutes' steady turning of the machine will suffice for clothing soaked overnight.

If necessary, white clothes can be boiled when taken out of the suds; but having no grime from smoke or black dirt, I have beautifully white washings without boiling.

Clothes go from this suds to the blue

Weekly Wash Made Easy

By ALTA BOOTH DUNN

water, and I use bluing very sparingly, for my clothes dry out of doors where the sun is a most efficient bleaching agency.

Great care is taken in hanging out the wash, and sheets, bath towels, knit underwear, outing flannel garments, and stockings are pinned on the line so that they will blow with the wind. These are folded from the line and are not ironed, reducing my ironing fifty per cent. Sheer pieces are hung on protected parts of the line, where they are safe from the ravages of the wind.

Colored clothes, particularly those of the children, must be rubbed a little on the board, for they cannot be soaked without endangering their color.

It is essential that the ironing board should stand firmly and be of proper height, so that the operator may work comfortably as well as expeditiously.



WHEN WASHING OVERALLS or badly soiled shirt collars or cuffs, lay them on the washboard and use a scrubbing brush instead of rubbing by hand. They are much easier cleaned that way. A. W., Oklahoma.

WHEN WASHING WOOLEN BLANKETS, put one teaspoonful of glycerin in the rinsing water, and you will find that this will make them soft and they will look like new. MRS. A. M. F., Iowa.

TO RENOVATE OLD BLACK LACE—Lay the lace in black coffee to which you have added a little black ink. When ready to iron, place it between black goods. Iron on the wrong side while still wet. J. C. E., Ohio.

TO WASH PILLOW FEATHERS—Remove feathers from ticking, place in

suds, and wash, using the washboard as for clothes. Squeeze out water between hands, and put in rinse water. Wring through wringer out of the rinse water, spread on a sheet on the floor, stirring occasionally. When the feathers are dry they will be as soft and fluffy as when new. MRS. G. B. T., Louisiana.

Recipes

EXCELLENT DUMPLINGS—Two cupfuls of flour, four teaspoonfuls of baking powder, two teaspoonfuls of butter, salt to taste, three-fourths cupful of milk. Take a piece of dough the size of an English walnut, roll in floured hands.

R. O., Maine.

DATE PUDDING—One-half cupful of sugar, two eggs beaten well, one cupful of dates, one cupful of chopped nuts, two tablespoonfuls of flour, two teaspoonfuls of baking powder, and a pinch of salt.

Mix ingredients in the order given. Spread about three fourths of an inch thick on a tin, and bake about half an hour in a moderate oven. Cut in squares, and serve with whipped cream.

C. M., Wisconsin.

DELMONICO CHOPS—Three veal cutlets, cut three-fourths inch thick; divide each cutlet into four or five pieces; score well, string on skewers, dip in egg and crumbs, season with salt and pepper; fry in lard and butter; serve with cream gravy. F. L. D., Ohio.

NEW ENGLAND BROWN BREAD—One cupful of yellow Indian corn meal, one-half cupful of rye meal, one-half cupful of flour, one cupful of milk, one-half cupful of molasses, one-fourth teaspoonful of salt, one and one-half teaspoonfuls of baking powder. Mix ingredients well together, pour into greased brown bread mold, steam four hours, dry off ten minutes in moderate oven.

M. F. S., New York.

Billy and the Banana Peel

By WINIFRED ARNOLD

MASTER BILLY BRAINERD was a dear little boy. There's no doubt about that, for his own mother said so, and who should know any better than she?

But one very strange and sad thing was the matter with Billy. Up in the corner of his mind where his memory lived there came a little hole one day and things began to drop through. Of course Billy ought to have mended the hole right away, but he just said, "Oh, I can't help it if I forget," and the hole grew bigger and bigger just like a hole in your stocking, and by and by it seemed as if even his memory itself had dropped through and there was nothing left but a great big hole called a forgettery.

Of course, such a state of things made Billy himself, and other people too, a great deal of trouble, for many times he seemed like a very disobedient boy when he didn't mean to be at all. He had just tucked the command carelessly into his mind and right through the hole, where he never even once thought of it again.

ONE thing his mother had said over and over again was that he must never throw banana or orange peeling down on the sidewalk or in the street, but every time Billy said, "Yes, Mother," quite politely, and slipped the words right through the forgettery almost before she had stopped speaking.

So one morning out he came from breakfast with a big, fat banana, and off went the peeling as he went down the steps, and in just a minute more it was lying almost hidden under the hedge, with just one treacherous little end out on the sidewalk, while Billy himself was far up the street shouting for Tommy Carter to come out and play ball.

In just five minutes more out came Billy's own dear mother, hurrying up the walk to catch a car at the corner, and her foot happened to step upon the very spot where her little boy had thrown the banana peel so short a time before.

Billy saw her himself when she fell, but when he got to her she couldn't even speak to him, but lay there so white and still he thought she was dead, for she had broken her ankle and it hurt her so badly that she had fainted away.

I don't need to tell you how Billy felt when he saw that, nor when he found out later just what had happened and that it was all his fault. As soon as she had been carried into the house and the doctor had been there, Billy ran

away and hid, for he was sure she would never forgive him, but by and by he had to come back to see if she really was alive, and then he found out just how much a mother can forgive when a little boy is really sorry.

There were long days after that when everyone in the house had to be very quiet, and Billy's forgettery did not have much chance to let things slip carelessly through. Billy remembered every minute that his mother was suffering, and he remembered to close doors very quietly, and to walk downstairs instead of running, and to lower his voice when he passed by his mother's room.

It would surprise you how little there was left for his forgettery to do when Billy began to want to remember.

WHEN Mother was better and didn't suffer so much pain, she and Billy had a long talk about what a dreadful thing it is to have only a forgettery up in your mind, and how much it might make other people suffer, and yourself too. And then she showed him how he could weave across little strands of love and thoughtfulness and, most of all, will power, till the big hole was all closed up.

"You've woven one strand already, Billy," she said. "I'm sure you will never forget again about throwing slippery things where people may walk on them, will you?"

"I should say not," said Billy with a choke in his voice. "Never, never again." And this time his mother knew he meant it.

Two or three days later he came in with a very important air and his two little cheeks as red as roses.

"Are you well enough to see some of the boys, Mother?" he inquired eagerly. "Oh, please say yes!"

Mother did say yes, with a happy little smile, so Billy threw open the door. "Come on," he called, and in walked five little boys in a row with their caps in their hands, and a tiny little pin in the shape of a banana on each jacket.

Billy took his place at the end and the boys lined up in front of Mother's couch.

"This is your banana brigade," he announced proudly. "We've made it a sort of club, so we wouldn't forget never to throw peelings down ourselves, and to pick them up if other folks do. Uncle

Dick says he thinks it's a good plan, and he gave us these nice little pins.

"See, they have the letters B. B. on them to remind us. And all six of us are going to wear our pins to school. Are you glad Mother?"

"Glad?" said Mother happily. "It's almost worth having a broken ankle if six boys start out being such useful little citizens on my account. May I wear a pin too?"

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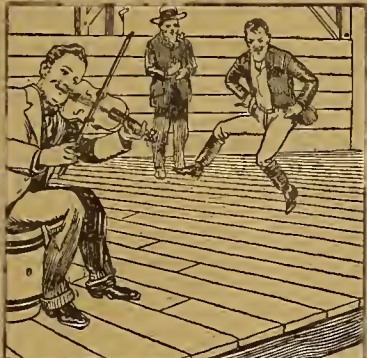
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Hearts and Hazards

A Chapter of Sad Days with a Happy Ending

By EDWIN BAIRD

PART VII

NOW Steve was here, and Ben, half-unconscious, was wrapped in blankets and helped into the buggy, and the homeward drive was begun. And Ben, almost exhausted by the siege of unceasing pain and exposure, felt himself sinking into oblivion as the carriage wheels crunched slowly through the hard snow. He struggled against the feeling in vain, and his last thought, before he lost consciousness, was:

"She and Henkel, indirectly, are responsible for this. If it hadn't been for Henkel . . . and her engagement . . ."

The doctor rose from Ben's bedside and, moving toward the hall, signed to Mrs. Abbott to follow.

"Don't worry about his ankle," he said when the bedroom door was closed behind them. "That will soon knit and heal. The main trouble lies in another direction: your son has an iron constitution, but I doubt if even that will be able to withstand what he has endured. Watch him carefully and follow the directions I gave you. I'll look in again to-morrow noon."

But he came again the following morning, early. Mrs. Abbott sent for him. Ben's fever had risen alarmingly.

The physician's skilled eye immediately detected the approach of the thing he had feared last night—pneumonia. He had refrained from revealing this fear to the mother last night, but he told her now, and advised a trained nurse. Mrs. Abbott, however, rebelled against this.

"I can nurse him so much better," she expostulated. "And Ben wouldn't be satisfied with anybody else."

"But you've got to get some rest. You're wearing yourself out. If you won't agree to a nurse, at least have a woman to do the housework."

"Lucy," she told him, "will be home to-morrow from school. She was coming, anyway, for the Christmas holidays."

"Very well," he conceded; and then gave her some further directions concerning the care of her son. He was one of the old-time general practitioners—now fast disappearing, it seems, in the more urban centers—and it was his conviction that a mother is the best nurse in the world.

But despite Mrs. Abbott's excellent nursing, despite everything the doctor could do, Ben's condition grew steadily worse. His periods of delirium became longer and more frequent; and she, sitting wakefully beside his bed far into the night, watching him with tragic eyes, learned many things which theretofore had been hidden from her. She learned why he had struck Henkel that night in Peoria, and that Henkel had been here a few days ago, reporting Gertrude's engagement. And she learned how deep was his love for this girl, who too obviously cared nothing for him.

AS HE moaned of these things in his pitiable frenzy, her heart grew sick. There was nothing she could do for him—that was the cruellest part.

The doctor, though, more troubled than he seemed by Ben's retrogression, suggested something:

"We've got to get this girl he calls Gertrude. It may be our only chance of saving him. Do you know her, Mrs. Abbott?"

She nodded.

"Then I advise you to get her without delay. I think she'll come if you explain it's a case of life and death. Worst of it is," the doctor continued, "he's not making any fight to get well. Doesn't seem to care whether he lives or dies. But you get that girl here. Make her hold his hand and talk to him. It'll do him ten times more good than you or I can."

Mrs. Abbott, dreading to leave Ben even for a few hours, thought of sending Lucy; but the fear that Lucy might fail impelled her to go herself. As soon as Steve had the buggy ready she started for Peoria.

Gertrude was in her room tying up Christmas gifts when she saw Mrs. Abbott alight from the buggy. Dropping her work, she fled precipitately downstairs, out upon the veranda and down the walk toward the gate, heedless that she was not dressed for inclement weather. Her face had gone suddenly pale.

"Is Ben hurt?" she cried.

"He—the doctor says he may die," replied Mrs. Abbott, "unless you go to him. He's been delirious for more than a week—"

Gertrude established a new record

for changing clothes. In fifteen minutes she and Mrs. Abbott were seated in the buggy, which bore them swiftly countryward. From a laden conscience the girl spoke volubly:

"How he must despise me! I should have written him months ago—and I did try to write, many times. Only last night I began a letter, and wrote two or three pages, and then tore them all up. I'd put it off so long I didn't know what to say or how to apologize. You see, I learned last summer about—what caused the fight that night, and I couldn't help thinking last night how he would hate me when I told him I'd known it all this time and hadn't apologized for the shameful way I'd treated him. But I don't blame him if he hates me, anyway."

"He doesn't hate you," said Mrs. Abbott simply. "He loves you."

"But—when he learns—"

"The only thing that has distressed Ben, or at least the thing that distressed him most, is your engagement."

"My engagement!" cried Gertrude, and sat bolt upright, staring blankly at the older woman. "But I'm not engaged!"

IT WAS Mrs. Abbott's turn to stare; and gradually, as she realized what this would mean to Ben, a warm comfort, altogether sweet and soothing, settled around her heart.

However, "He believes you are," was all she said.

"Do you know who told him, Mrs. Abbott?"

"I'm afraid I can't, dear. All I know is what I've gleaned from Ben's raving while delirious. I wish I could tell you, but I'm entirely in the dark myself."

Thereafter, for a space, both enjoyed a silence, each engrossed in her own thoughts. Mrs. Abbott was still thinking of Gertrude's revelation and what it would mean to Ben, and this train of thought persuaded her to utter something which otherwise would certainly have remained unsaid:

"Gertrude, I wish you could know Ben as I know him. He has so many splendid qualities. Of course," with a wraith of a smile, "I may have a mother's prejudice, but I do believe he is one of the best men that ever lived. I know there is none more honest, more upright, or kind. And you've no idea how devoted he is to you."

It was not the crisp December air which turned the girl's clear skin shell-pink as she answered: "I do!—like him, Mrs. Abbott. I think I always have, only I've been too blind to know it. I've been thinking of him the last few months more than you'd ever suppose. I hardly know how to explain it. It was as if he'd made an indelible impression on my subconscious mind, and then, after he'd gone away, I became conscious, for the first time, of his true worth. That doesn't seem to express it very clearly, but it's the best I can do."

Mrs. Abbott squeezed her hand encouragingly, and she went on:

"I never really cared for that other man—Henkel. I've known that now for a long time. It was only a school-girlish infatuation. I've often contrasted him with Ben; and how blind I must have been not to have seen what a vast difference there was between them! But I know now," said Gertrude, lifting her earnest eyes, "and I've learned something else besides. I never disliked country life, really. It was only because—" Here she stopped abruptly, and the rich color in her face deepened. Did Ben's mother know what this admission meant?

Whether she knew or not, she promptly turned the talk into another channel, and kept it there until the carriage arrived at the farmhouse.

Ben was awake when they entered his chamber, and Lucy and the doctor were with him. His fever-glazed eyes, the sunken face, as white as the pillow against which it rested—these sent a pang to Gertrude's heart and brought a spasmodic tightening in her throat. And then the others quietly withdrew, and she was alone with him.

It was perhaps forty minutes later when Mrs. Abbott tiptoed to the room, with the intention of summoning her to supper. Ben had fallen into a peaceful sleep—a blessed, health-giving sleep, and the first he had known in seven days—and Gertrude sat near the head of his bed, holding his hand. And it may be that she alone knew why her cheeks were damp with tears.

[THE END]

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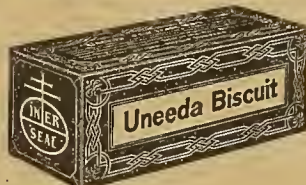


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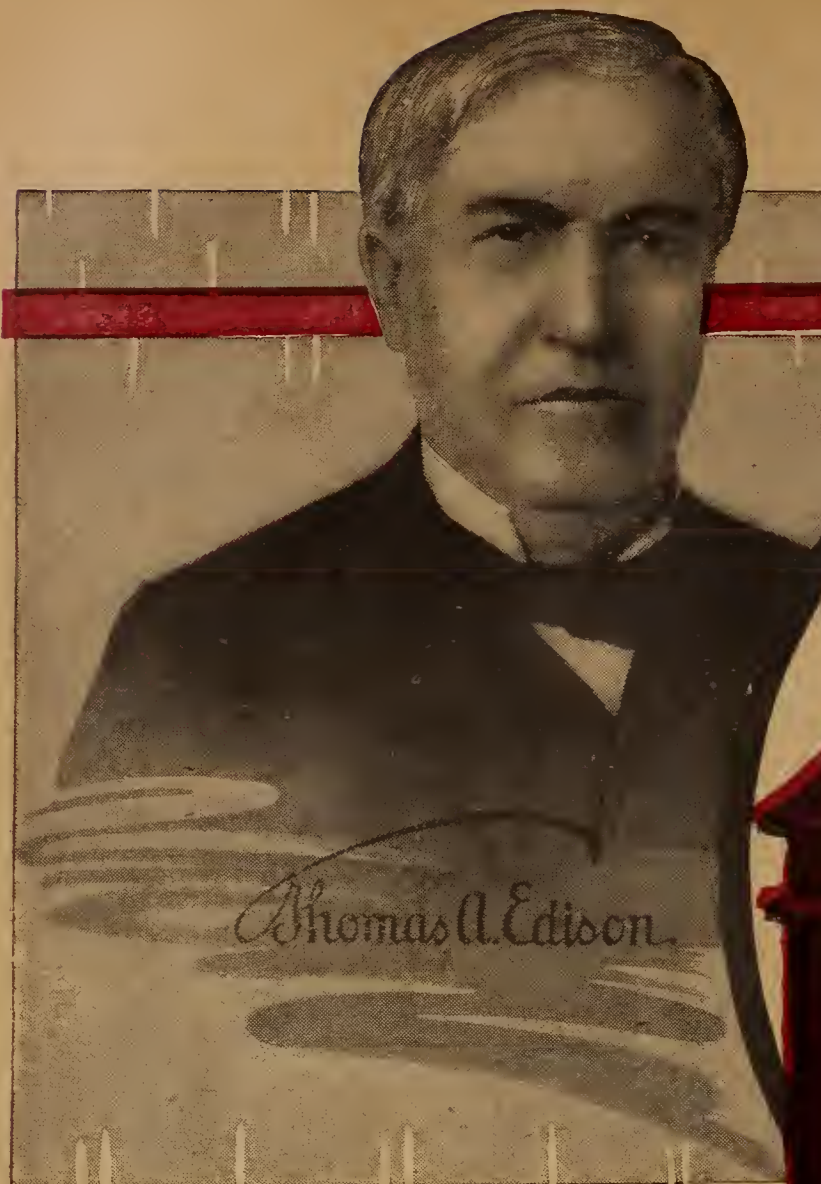
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A Happy Home

Happiness is life—and real happiness is found only in a real home. And by a *real home* I do not mean a house with a yard or farm around it. Oh, no! A real home is the place where the happy and united family gather together for mutual enjoyment and recreation. And the Edison makes this possible, for it stands supreme as the greatest home entertainer. It will mean more than entertainment and merriment, more than an hour of amusement, yes, it will mean genuine pleasure of the lasting sort—helpful entertainment and culture of the most beneficial kind. It will mean the family united—a new home.



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Get the New Edison in your home on free trial. Entertain your family and friends with the latest up-to-date song hits of the big cities. Laugh until your sides ache at the funniest of funny minstrel shows. Hear the grand old church hymns. Hear the crashing brass bands, the waltzes, the two-steps, the solos, the duets and quartettes. You will sit awe-stricken at the wonderful grand operas as sung by the world's greatest singers. You will be moved by the tender, sweet harmony of quartettes singing those old melodies that you have heard all your life. Take your choice of any kind of entertainment. All on free trial. Then, after the trial, send the outfit back at our expense if you choose. Or keep it on our great rock-bottom offer. **Send the coupon today!**

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FARM *and* FIRESIDE

The National Farm Paper - Twice a Month

ESTABLISHED 1877

5 cents a copy

Saturday, January 20, 1917

Eastern Edition



PHOTOGRAPH BY JOHN KABEL

What Delco-Light Has Done For My Farm

By SIDNEY A. SMITH, Wixom, Michigan



FARM life isn't what it used to be.

When I was a boy we lived in a little one room and attic log house.

We used tallow candles for light—and we made them ourselves.

A great stone fireplace served for both heating the house and for cooking.

Our farm work was all done by hand and with the crudest kind of tools.



Mrs. Smith looks after Delco-Light, and it is simply good fun for her.

If we wanted to go to Detroit, thirty-five miles away, we hitched up the team and made our plans to be away from home at least three days.

We knew almost nothing about the outside world—rarely saw a newspaper and were limited in our associations to a very few neighbors.

We never saw a play—never heard good music and rarely got hold of a good book to read.

It isn't much wonder that the young folks were eager to break away from the farm and get into the cities and towns.

Farm life meant isolation and drudgery.

Contrast that with my farm today—the farm adjoining the one on which I was born.



Delco-Light separates the cream and churns the butter.



Mr. Smith's house, near Wixom, Michigan—in which Delco-Light enables him to enjoy every advantage that the city can offer, with the added joy of life in the country.

When we want to go to Detroit now, we jump into our automobile and are there in less than two hours.

Our neighbors do not live any nearer to us—but we live nearer to

Today we touch a button and the house or barn or cellar is flooded with light.

We turn a switch and electricity pumps water for us, making possible



The big living room in Mr. Smith's house. Contrast the artistic electric fixture with the old kerosene lamp displayed on the table at the right.

them because it is so much easier to get around.

Then there is the telephone—instant communication with friends and neighbors everywhere.

Newspapers and magazines come to us by rural free delivery every day.

The phonograph has brought the best music in the world into our home—the Grand Opera stars sing for us, and if the young folks are here and want to dance, the finest orchestras in the land play for them.

But greatest of all wonders of modern farm life are the advantages that came to us when we installed Delco-Light.

Heretofore the farm has been deprived of the advantages of electricity because of the great expense of extending the wires.

Delco-Light changed all that by making it possible for us to produce our own electric current just as we want it.

a modern bathroom and running water in various parts of the house.

Electricity also separates the cream and churns the butter.

Wash day has always been a bug-bear on the farm—but it has lost its terrors. Electricity washes the clothes while the women folks are free to sew or read or go about their other duties.

We bought our Delco-Light plant about eight months ago and were just a little fearful of it before it was installed.

We always had an idea that electricity was something that required expert attention and we weren't at all sure that we could manage it.

That feeling didn't last long, however.

Delco-Light started right off when it was installed as though it had always been on the job—and it hasn't caused a minute of trouble since.

My wife looks after it almost entirely and it is simply good fun for her.

Delco-Light has not only brightened our home and made it more attractive—but it has lightened the labors of the women folks in a truly wonderful fashion.

We now have in our farm home every advantage that our city friends enjoy—and we have in addition the health and freedom and joy of life in the open.



One of the best things Delco-Light does is to pump the water.

The telephone, the automobile, the phonograph—all have contributed splendidly to the convenience and enjoyment of farm life. But greater than any of them in its far-reaching influence is the little machine that gives to the farmer all the electricity he needs for light and power.

And the best part of it is that it not only better living conditions—but it does so much of the farm work and saves so much time that it is actually a profitable investment from a dollars and cents point of view.



Delco-Light takes the drudgery out of wash day.

Delco-Light is a complete electric power plant—gas engine and dynamo in one compact unit. It is so simple that a child can operate it—starts on touching a switch and stops automatically when batteries are fully charged. It furnishes ample current to light house and barn—also to operate small machines. The price complete is \$275 f. o. b. Dayton. Detailed information concerning Delco-Light can be obtained by addressing the Domestic Engineering Co., Dayton, Ohio.

Advertisement.
E.W.

FARM and FIRESIDE

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No. 8

How We Planned and Built Our New Home

By W. R. EDWARDS

MY WIFE and I had often remarked in our drives through the country that many of the new farmhouses built during the last few years looked pretty small—so small that any growing family would soon be crowded in one of them. What is more, several new farmhouses in which we had visited lacked many of the conveniences that make life worth living in these days.

So when we were ready to begin our house we decided, first, to give the whole subject plenty of thought, and to build such a place as our boys and girls would be glad and proud to call home. And the surprising thing about it all has turned out to be that our house is not as expensive as some others we know of that were built with less forethought and more money.

Of course, we were fond of our old house. We had lived in it a good many years, and my wife in particular had many happy memories connected with it. So at first we considered remodeling it, bringing the old place up to date and yet keeping the old associations. But after consulting an architect and learning that it would cost practically as much to remodel as to build new, we decided to make a fresh start. So with many regrets we wrecked the old house; even the old foundation was torn out. A few old joists were used, but the rest of the material went to the scrap heap, or was cut up for firewood.

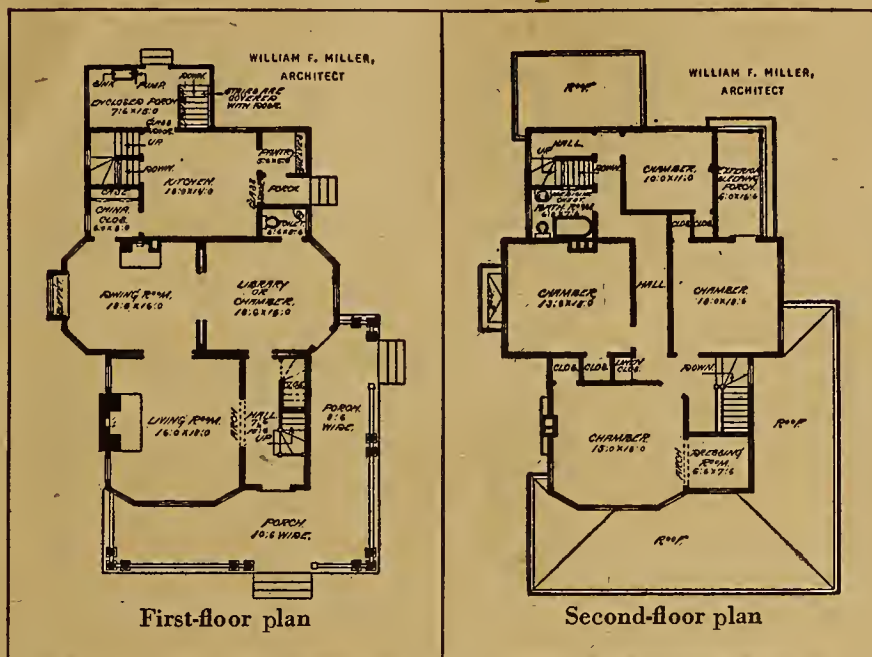
We decided to have the new foundation of concrete because it lessens the labor of building in the country, where stone must be hauled long distances. The smooth finish of a concrete wall also gives a neat and clean appearance to the cellar. Our cellar occupies the space under the dining-room, library, and kitchen, and can be reached either from the kitchen or the enclosed porch on the rear. The part of the foundation showing above ground on the outside was plastered with cement and then given a sand finish by means of a carpet float.

Library Useful as a Sick-Room

WE HAD always wanted plenty of room for parties, so decided to have an arch between the hall and living-room and folding doors between the other rooms down-stairs except the kitchen. When all the folding doors are open we have a total space of about 32 feet square and this feature has made our home a favorite place for many neighborhood entertainments.

The fireplace in the living-room occupies nearly half of the wall space on one side. To make it look warm and inviting we selected red pressed brick for both the mantel and the hearth. The opening of the fireplace is large enough to receive a good-sized log. There is a smaller fireplace in the dining-room which we light on cool mornings in spring and fall when the weather is not cold enough to justify a furnace fire. Here the mantel and hearth are of dull green tile, which make a pleasing contrast to the cheerful fireglow.

The room beside the dining-room, which in the left-hand sketch is called the library or chamber, has turned out to be one of the best things about the whole house arrangement. We ordinarily use it for a library, but in case of sickness it can be easily converted into a bedroom which saves a tired mother many



steps. Adjoining this room is a toilet and washbowl with hot and cold running water. Besides, there is a door opening onto the porch where a patient may be wheeled for fresh air and sunlight during the day.

Of course, my wife wanted to have a convenient kitchen, and she was a long time in deciding between the different plans that the architect sketched for her choice. Here is a matter in which a woman is a better judge of arrangements than a man, for she knows where the dishes and supplies should be kept to be handy. Notice in the plan which we adopted that you must pass through the china closet to reach the kitchen. This is purposely arranged to keep cooking odors from the front of the house. The china closet contains shelves for dishes, with doors to protect them from dust; also drawers and lockers for table linen and supplies commonly used in either the kitchen or dining-room. A special long vertical compartment provides a place for table leaves. At the opposite side of the kitchen are the pantry and a side porch. Here, except in very hot weather, it is always cool enough to keep the ordinary supplies and dairy products nice and fresh. The pantry accom-

modates the refrigerator, thus helping to keep dirt and muss out of the house, because ice is naturally taken in through the side porch instead of being dragged through the kitchen. On the rear is an enclosed porch built over the well, and with stairs going down to the cellar.

We decided to have a nice room for the help and to provide as many conveniences and liberties as possible without disturbing the rest of the household. So we had a rear stairway leading from the kitchen to the rear hallway on the second floor. Altogether there are four bedrooms on this floor, and each has a good-sized closet. The front bedroom is the largest, and has an alcove that will serve either as a dressing-room or for a child's crib. It has a window for ventilation. Just outside of the front bedroom in the hall is a linen closet fully equipped with drawers and shelves.

An admirable feature that we prize highly and which is quite forgotten in the usual planning of a farmhouse is a sleeping porch. Ours opens off the bedroom at the head of the front stairs, and is large enough for two beds. When screened it makes a light and airy sewing-room in summer; and if any member of the family has an artistic

inclination, what better place can be found for a small studio? But we inclined to the more practical things, and therefore use this porch largely for airing bedclothes and shaking rugs.

One of the things about the house I insisted on, and which any farmhouse can have, is a bathroom with modern plumbing. By locating it over the kitchen we saved considerable expense in the amount of piping required. Our bathroom is fully equipped, has hot and cold running water and a built-in medicine cabinet with mirror door. A hand-operated pneumatic tank in the cellar supplies the pressure.

Inside Finish Easily Cleaned

THE entire interior of the house is finished in yellow pine, and except for the bathroom, which is white-enameled, the woodwork is stained, varnished, and then covered with a coat of dead-lac, which overcomes the high gloss of the varnish and gives a more mellow tone. My wife has found that a finish of this kind wears well and is easy to keep clean.

The flooring throughout the house is also yellow pine, dressed after laying, and then stained and waxed. We use rugs entirely; there is not a carpet in the house. If you are still using carpets and they are about worn out, why not take them up, refinish your floors, and replace the carpets with rugs? It lessens the task of house-cleaning and we consider rugs warmer in winter and more satisfactory in every way.

The attic is reached by the back stairway. It is high, light, and has a tight floor. The two chimneys are made of common brick laid with red mortar joints, and the tops are protected with stone copings to prevent the rain from washing out the mortar. The hanging gutters are of molded galvanized iron, which gives the appearance of a hidden gutter. They are braced every two feet, which makes them strong enough to place a ladder against without crushing the design. This is a decided improvement over the old half-round tin eave trough so very easily



This farmhouse, though costing less than \$3,600, has plenty of room for parties, is easily kept in order, and has many conveniences that will appeal to all the family

[CONTINUED ON PAGE 14]

Pork Without Corn

Good Rations for Raising Hogs on Irrigated Land

By W. C. McCORMICK

PORK can be produced at a profit outside the corn belt. Though corn is the one best and most economical feed for fattening hogs, there are other grains successfully raised in the irrigated sections of the United States, and when these are fed in the proper manner and in connection with the forage crops raised under irrigation, they will produce results nearly equal to those attained in the corn belt.

I consider the following points especially important in choosing a location for a hog ranch. The hogs must have proper forage, growing and fattening grain, water, shade, and good housing, both in summer and winter. When these conditions are found, hogs can be produced at a profit if the owner will devote his time and mind to his work. You will find men who will tell you that hogs are a failure in irrigated districts of the West; but if you will look their ranches over and notice how they raise hogs, what provisions they have made to care for them, what grain they raise, and how they feed it, you will find that these farmers never raised one single hog; the hogs they have sold raised themselves.

We live in Idaho, but any piece of land west of the Missouri River that will raise alfalfa, any of the clovers, wheat, barley, and oats, will, when properly handled, successfully produce hogs at a profit without the use of corn. Of course, the ideal hog farm has many more advantages than are to be found on the average farm, but shade and the many other necessities may be provided with but little labor and scarcely any expense.

The first step when going into the hog business is properly to fence a number of small pastures containing suitable forage. Let each pasture contain from one to three acres, seeded to a mixture of equal parts of alfalfa, red and alsike clover, and timothy. Fence with 32-inch woven-wire hog fencing, and provide natural shade or a shelter made of poles covered with a layer of brush upon which is piled straw. We find that straight alfalfa, while the best forage, will kill out sooner than a mixture such as mentioned. The timothy takes the place of the Eastern blue grass and helps to prevent rooting.

Enough of these pastures are used to permit moving hogs from one to another during irrigation, and in this manner the pastures are not eaten down too close. Consequently they last much longer than meadows where hogs are allowed to run continuously. Another advantage in having several pastures containing different acreages is to enable us to place hogs and pigs of different ages and sizes in pastures by themselves. The larger fields are used for the weaned pigs three months or older, dry sows, and bred sows, while the smaller ones are used for sows with pigs at side and sows farrowing. In each of the smaller pastures are built creeps in which are placed shallow troughs for the feeding of the litters as soon as they will eat.

Cold-Weather Housing

THE question of housing hogs covers a large field. Whole bulletins covering this one subject have been issued by the U. S. Department of Agriculture and by many of the state experiment stations. One must choose some good housing plan adapted to his location and climate. For winter quarters we use permanent houses, eight feet square, covered with a half-pitch shed roof made of boards covered with prepared roofing. These sheds face the south, and are six feet high in front. On the north side of these sheds we set posts in the ground with the tops even with the top of the shed roof. To these posts are nailed poles forming a pole fence with a four-foot space between it and back of sheds. In winter this space is filled with straw. The straw is also piled on top of the shed roofs, giving sufficient warmth to enable us to farrow pigs during any of the winter months, with the weather below zero, without danger of chilling the pigs. Should the weather be exceptionally cold we hang a lantern in the front of the buildings.

The doors on the front of these pens or houses are solid up to within ten inches of the top of the roof. A piece of canvas is hung from the roof to below the top of the door. This canvas is lowered during cold weather and opened by throwing up on the roof when the sun is shining. The doors open out one way to a fence which is built the full length of the pens. When the doors are opened they form a small feeding pen eight feet square in front of each house, making the house and pen an enclosure 8x16 feet. This is ample

room for the little fellows to exercise in during the bad, stormy days. In front of each pen is an outer lot, 8x50 feet, running out to a ditch carrying running water. This lot is seeded to the same forage crop found in our larger fields. We have gates in the fence in front of farrowing pens, also small gates in the fence separating the outer lots. These gates are necessary for convenient feeding. Guard rails are provided in all farrowing houses on all sides, the ones in front being built onto the door and opening with it.

These buildings and gates are not expensive, and we have had good success with them. There is no floor in the houses, high gravelly ground being chosen for the site.

For summer farrowing we use the common A-shaped portable houses. These portable houses are not built double, but are made of single boards and battens. Doors are built in each end for ventilation, and each house is on skids. Small pens are fenced off in a meadow, and each pen opens into the other with small gates between. A week prior to farrowing, the sow is placed in one of the lots and given a portable house. When the sow is moved from this lot after farrowing, the house is moved into another lot having fresh grass, and another sow is placed in the lot. In this manner we are able to have fresh pasture for each sow as she farrows and also a house for her. After trying the permanent and portable houses for summer farrowing we have chosen the latter as the most desirable for the reasons set forth above. The average cost of these portable houses is \$5 outside of labor.

Keep Your Proved Sows

AS I have already said, you will find men who will tell you that there is no money in hogs on irrigated land. Look these men's herds over and see what their foundation herds consisted of.

Scrub hogs never made any man money. When a man goes into the hog business he must pick out the very best. The boar is half the herd. It costs less to produce a pound of pork on the frame of a pure-bred hog than on a grade, and you command the very highest market price. Color makes a lot of difference in a car of hogs. Take a car of mixed color grade hogs and a car of a straight-breed hogs, both averaging the same. Place them on the same market and see which brings the more money.

The foundation herd, if properly chosen, will cost you more money than if they are just picked up here and there, regardless of breed; but the offsprings from this herd will more than pay you the difference between the amount paid for this sort of stock over the price of grades.

When buying your foundation herd choose one of the standard breeds which is adapted to your section of the country, and which best suits you. They all have their talking points. The Berkshire, Poland-China, Chester White, Duroc-Jersey, Hampshire, Tamworth, Yorkshire, Mule Foot, and Large Black—all have registry associations in the United States. Unless you are sure just what you want, drop a card to these different association secretaries and ask for their literature, look these booklets over and choose the one best suited to your location, and then stay with that breed of hogs. Don't change breeds every time someone comes along and talks up some other breed. They are all good.

After choosing a breed, get in touch with reliable breeders in your own State. If none suits you at home, look elsewhere; but, above all, buy the best for your start. If you are a farmer with a small bunch of good grade hogs, don't sacrifice your proved sows

simply to get into pure-bred stock. Keep your good sows, even though they be grades, but breed them up. Get a pure-bred boar which will mate them best, and a few pure-bred sows as a starter, and gradually work into a pure-bred bunch of hogs. But don't cross pure-bred breeds. You will hear some say that the best results are attained by crossing breeds, but if this were a fact, the best hog men in the country would not be producing pure-bred stock hogs for the market.

After you have chosen your breed and found out where you can get them, make a personal visit to the seller's farm and choose your hogs by sight. Should you not be able to make a personal inspection, get them by mail orders.

Some Tested Rations

IN SELECTING stock, choose your boar first; get a registered boar, one with good blood lines. Look for deep sides, full hams, strongly masculine head, well-crested neck, shoulders developed with age (don't get him too big in the shoulders when a pig), slightly arched, deeply fleshed back, and standing up well on strong feet and pasterns. In choosing the sows, pick sows with smooth shoulders, well-sprung ribs, straight, deep sides, wide, straight back, broad rump, and good hams, standing up on moderately short, straight legs with strong pasterns.

A long-bodied sow is usually an exceptionally good brood sow, but should a sow meet every other requirement I would not turn her down because of scanty length.

Right here I might say a word about boars and sows carrying the same blood. Some purchasers wish only boars and sows unrelated. Now the very best authority will tell you that they would not consider buying breeding sows that did not carry much of the same blood of the boar. Notice the breeding of the greatest hogs this country has ever known, the highest priced hogs ever sold, and you will see that in nearly every instance they are intensely line-bred hogs.

In starting a foundation herd, select young sows, preferably tried yearling sows. Get a few head of these yearlings and a good boar. At the same time buy a few head of weaned pigs, and within a short time your herd will consist of pure-bred hogs that you will be able to show any man with pride. Your male hogs will always be in demand at fancy prices, and when you ship a carload of fat stuff you will top any market you sell on. It doesn't cost as much to fatten a pure-bred hog as a scrub.

Keep your boar in a pen by himself during the breeding season, and turn only one sow in with him each day. This should be done with a young boar by all means. Build a breeding crate to use with large sows and for small gilts. Keep a record of the breeding, and know when the different sows are due to farrow. Seven days prior to date due to farrow we take our sows out of the large pastures and place them in individual farrowing pens as above stated. At this time we begin feeding a balanced ration composed of milk-producing grains, cutting same down to nothing the day of farrowing, and feeding nothing except what water the sow will drink for the first twenty-four hours after farrowing.

Beginning twenty-four hours after farrowing we feed a small amount of bran, and for three weeks after farrowing feed a balanced ration worked out under our own conditions. At the end of the third week we move the sow and litter, together with three or four other sows with litters of about the same age, into a larger field containing the forage mentioned. The pigs begin to eat about this time, and the creeps are used to feed them in. Twice daily we give all they will clean up of the same ration the sow has been fed on.

The pigs are weaned and boars not to be kept for breeding purposes are castrated at ten weeks of age. The sows are taken from the pigs at this time and, if to be rebred, are turned into a smaller pasture and a heavier ration is fed them to get them on the grain before breeding. If the sows are to be held over and bred later, they are turned into a large pasture containing other dry sows.

From the time these pigs are separated from the sows they are fed a growing ration consisting of ground oats and skim milk, feeding only what they will clean up twice a day, until they are four months old. Then we cut off the grain entirely on all pigs farrowed in the spring.

In fattening, we place about 40 head in a feedlot containing running water, and feed ground barley for the first two weeks. The third week we feed equal parts of ground barley and ground wheat, and the last week we feed straight ground wheat. This is all fed in self-feeders. We keep second-cutting alfalfa and a mineral mixture composed of 10 per cent copperas, 10 per cent sulphur, 5 per cent slaked lime, and 75 per cent coarse salt before them at all times during the fattening period.

Our pigs come out of the stubble fields and go into the fattening pens, and we are able to fatten in a month's time in this way.

EW



By raising one standard breed of hogs, I secure a uniformity of color and quality that always brings a higher price than mixed lots of grades or scrubs

My Silo Experience

Twelve Years of Observation Which May Benefit Others

By B. D. STOCKWELL

THE first year I fed silage was in 1905, twelve years ago, but, nevertheless, twenty-nine years after the first silo was built in this country—so slowly do improved methods make headway. We had a stone silo which had been expensive to build, and at that time the importance of a perfectly smooth inside wall to insure good settling was little known.

But we tramped the silage well, and there was but slight loss from spoilage. About that time I met a farmer from another State—I lived in Wisconsin—who had the most direful tales to tell about silage, how it ate holes in cows' stomachs and also made their teeth fall out. When pinned down to actual names, and dates and places, he stuttered for a while, and finally revised his story, asserting that, anyhow, silage would burn out a cow's inner lining in less than five years.

Though perfectly sincere in his belief, he could start no argument with me, for we had had no trouble like that, nor did any of our neighbors, some of whom had fed silage much longer than five years, and their cows looked the better for it. Such superstitious ideas, together with bigotted conservatism, have caused farmers, especially dairymen, to buy tons and tons of winter feed when they could have just as well fed silage grown on their own farms, as a large part of the ration.

In 1900 there were scarcely a thousand silos in the United States. By 1910 a fair estimate would be 40,000, and to-day the number is close to half a million, showing simply that the silo is quickly endorsed as a good thing wherever it is given a trial. In Indiana, for instance, there was one silo for every 22 farms in 1913. In 1916 there was one silo for every nine farms. And in Porter County, Indiana, one farm in three has a silo, and more will go up this year.

When silos are as thick as that, there is no room for the old superstitions to live and, furthermore, the skeptic who has held off in the purchase of a silo can get the benefit of his neighbors' experiences at first hand. While the broad essentials of a successful silo have been known for a quarter of a century, a good many details which experience alone can teach have only lately been fully appreciated. One of these is the importance of a perfectly level foundation. If your silo leans, the contents will settle toward the lower side and away from the upper side, leaving an air space which will make silage on that side spoil. In putting up a silo of concrete, tile, or such materials, this matter can be overcome in the course of building; but a wood stave silo and the different forms of paneled silos, also metal silos, should have a perfectly level foundation, and in addition be tested with a plumb line before they are filled.

A Chute Prevents Waste

TO BE sure of a level foundation, make it of concrete, and while the mixture is still wet level off the top with a straight edge and spirit level. Another thing to consider is a chute which covers the vertical string of doors. The chief value of a chute is to keep the wind from scattering and wasting the silage as it is thrown out. You can avoid the necessity of a chute by building the silo at the side or corner of the barn so it opens into the barn. This makes the feeding of silage entirely an indoors proposition. But when the silo is open in the open, a chute will prevent enough waste to pay for itself, and in cold windy weather is a welcome protection to the man who climbs the ladder to throw out the silage. A comfortable size of chute measures about 30x36 inches. There is a tendency nowadays to put windows in long silo chutes.

When a second silo is to be built in case the first proves satisfactory—and it will—plan to put the second within about four feet of the first, with the doors facing each other. Then by boarding across between the two silos a roomy and convenient chute is secured for both of the silos.

Unusual sizes and shapes of silos have for the most part proved to have serious disadvantages. For instance, a silo over 20 feet in diameter is rather hard to empty because of the distance that the silage must be pitched to the door. While some silos are made more than 20 feet in diameter, they are the exception and usually have two rows of doors on opposite sides. Exceptionally high silos require

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a great deal of power to fill them, they are costly, and while they preserve silage excellently the advantages are not sufficient to justify their general use. It is better to have two medium-sized ones.

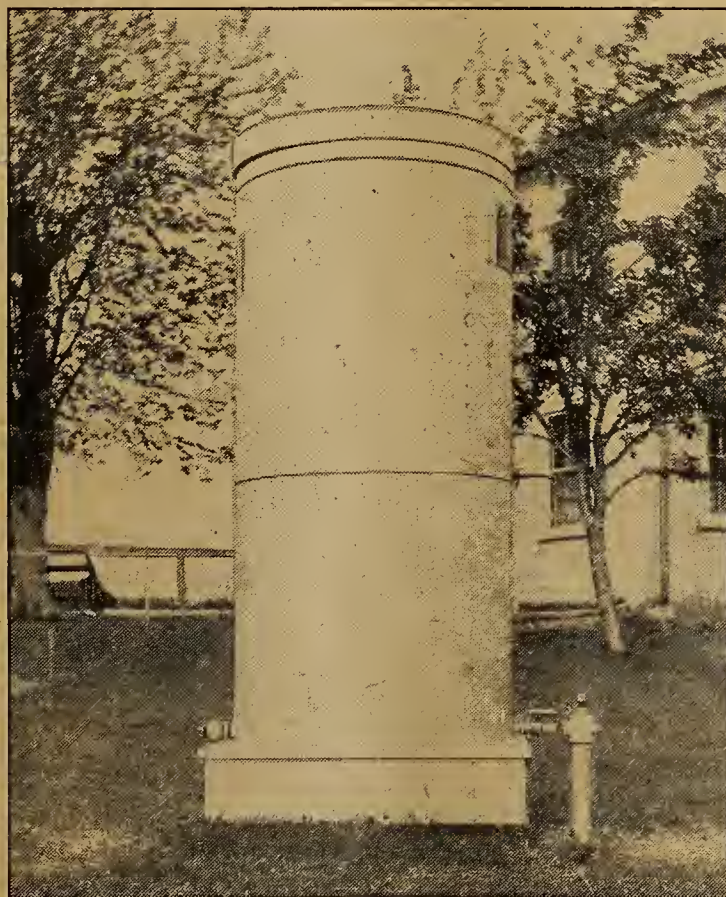
The average successful silo is about 14 feet in diameter, 36 feet in inside height, and will hold about 110 tons. The bottom of the silo extends from two to six feet below ground level, the depth depending on facilities for drainage to draw off excess moisture or juices. By the excavation a greater capacity is secured than if the silo were entirely above ground, without making it any harder to fill and not much harder to empty.



This permanent silo was uninjured by the windstorm which took the roof off the barn and damaged other buildings. Good reinforcement played an important part here

The dimensions given (14x36 feet) are what might be called an ideal size as far as convenience and economy are concerned, but at least 25 head of stock are needed profitably to consume the contents of such a silo. After it is once opened, feeding must proceed at the rate of two inches a day all over the surface exposed or some of the silage will spoil. Consequently, if a dairyman has only 12 cows to feed for a period of six months he would need a silo 10 feet in diameter and 26 feet high. Accurate tables have been prepared, and are easily available, covering the correct size of silos for feeding all kinds of farm live stock at all seasons of the year.

At the present time somewhere between 50 and 75



This acetylene generator furnishes gas for lighting all the buildings, and for cooking

per cent of all the silos in the country are of wood stave, which have the special merit of being quickly erected; in fact, they may be built in time to save the corn crop when one sees that it will not fully mature. But the mature judgment of silo users now seems to favor the more permanent silos of metal, tile, and concrete, even at the greater initial cost, on the grounds that they require less attention and the ultimate cost per year is extremely low.

There seems to be also a relation between ventilation and the keeping quality of silage. One silo owner noticed that the silage was spoiling next to the wall in a manner he could not understand. He also observed that frost collected on the inside of the silo at night but disappeared as soon as the sun came out. Finally, the idea occurred to him that the melting frost might be responsible for the spoilage on the theory that it carried the mold down to the fresh silage. He gave the silo more ventilation, which carried off the excess moisture, the frost disappeared, and the spoilage of the silage stopped. Probably poor packing when the silo was filled was partly responsible for the trouble, but the experience provokes thought and may benefit someone else.

Of the materials from which silos are made this much may be said: In addition to the constantly mentioned requirements of being perfectly air-tight and smooth inside, the material must be strong enough to resist the enormous outward thrust of the silage.

For this reason ordinary brick, in spite of its convenience, has not been generally adopted as a silo material. Brick has a low tensile strength and does not adapt itself very well to reinforcement. Reinforcing wires should be laid in every mortar joint to make a single-course brick silo strong enough. Among the silo materials which have stood the test of time are the wood stave, concrete (all styles), tile, durable metal, and masonry. In addition there are numerous silos made from a variety of materials; for instance, one silo is of wood lined with cement and sometimes sheathed with metal on the outside.

A tenant farmer naturally chooses a silo which is portable or is made of such material that he can use it for other purposes if he desires. This will mean a metal or stave silo, or possibly a home-made one. The established stock raiser who uses large

quantities of feed and lives in a locality subject to strong winds will naturally build a permanent silo.

Acetylene System

By A. L. ROAT

WHILE I have used several kinds of lighting systems on the farm and prefer the acetylene over all others, many of my neighbors are just as enthusiastic about electricity. The acetylene system I use has proved efficient and very reasonable for the purposes demanded.

The tank stands outside the house and furnishes enough gas to light the house, outbuildings, porch, lawn, and lane. I prefer the above-ground style of tank over the underground variety, because it is easier to clean and fill. Where very low temperatures are the rule in winter, the underground tank might be preferred. Seldom does it require attention more than once every three months. Then the tank is cleaned thoroughly, fresh water and carbide provided, and in a few minutes gas is generated and stored for use. With the new pattern tanks, such as shown on this page, there is little danger of explosion. In fact, I have never had any accident in the fifteen years I have used acetylene.

The supply pipes are all underground, and the supply of gas can be shut off at the tank by the stopcock. The light given by this system is bright and white. In the outbuildings I use a round globe wire covered, and never worry about fire. It is a safe, sane, and efficient system.

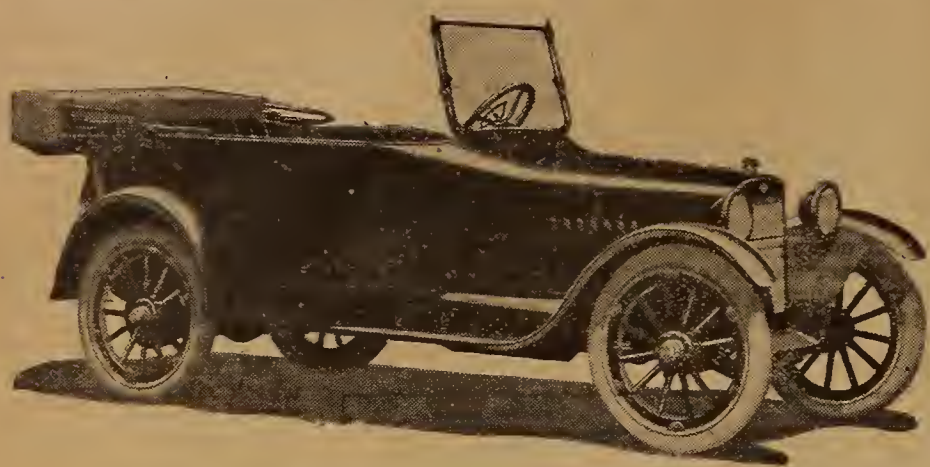
The first cost—the installation—is the only real expense. The cost of making the gas is a trifle, and there is really no labor involved in the work of cleaning the tank and refilling. It requires only a few minutes. I find the new-style acetylene cook stove is clean and gives very good results.

While the work of installation can best be done while the house is in process of construction, very little muss is caused when putting an acetylene system in an old house. Fixtures can be had in various styles to harmonize with all kinds of furnishings, if desired.

EDITORIAL NOTE: Questions on silo-building or the feeding of silage will be answered by personal letter. Address the Live Stock Editor, FARM AND FIRESIDE, Springfield, Ohio. For information on lighting systems address the Farm Equipment Editor, FARM AND FIRESIDE, Springfield, Ohio.

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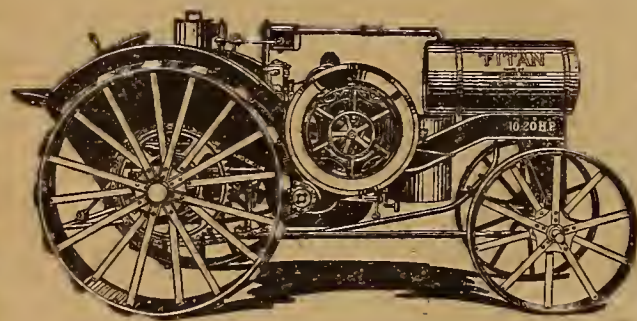
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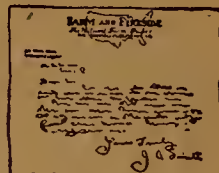
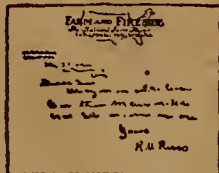


International Harvester Company of America
(Incorporated)
CHICAGO U S A



The Editor's Letter

Superstitions are a Barrier to Success



SOMETIMES a trivial happening is so startling as to impress one very deeply. An automobile owner, whose truthfulness I can personally vouch for, relates this amazing coincidence: "I had parked my car in the down-town district of the city where I live, and attended to some business matters. When I returned there was another machine in front of mine, also a machine behind it.

"In passing the first machine to reach my own, something familiar about it made me stop for a second look. It had a license number in six figures identically the same as my own, except that it was one less. Surprised at the coincidence I glanced at the car behind and was amazed to see an equally familiar license number, except that this was one more. They were all Ohio licenses and the cars were of the same make. Up to that time of the year more than 150,000 cars had been licensed, and these three consecutive numbers were the more interesting when I learned later that each of the owners lived in a different city.

"That was two years ago," he added, "and I have noticed thousands of license numbers since. But I have never seen or heard of any such coincidence as the one above."

Now just to illustrate how omens and superstitions sometimes originate, I want to add that this young man married a very short time after. It would be more interesting if we knew the number of days afterwards, also the day of the week, the date of the month, and the hour of the day. But all I know is that he married soon after this remarkable occurrence took place; and I am sure no reader would consider the two events as related. That is because it happened such a short time ago. On the other hand, if you should tell your children about this and they should tell their children, we could without much effort start the belief that if they rode in an automobile and saw another car with the same license number plus or minus one, it was a sign of an early marriage. Our grandchildren might even embellish the story with trimmings of their own. For instance, they might say that the marriage would take place between members of the families owning the respective cars. We now have superstitions about black cats, howling dogs, falling stars, and what not; so a modern superstition introducing motor cars would be a welcome relief and an interesting novelty. Nor does our alleged modern enlightenment protect us or our posterity from actually believing in such nonsense.

The ancient Greeks and Romans were highly civilized, not in our sense of the word, but enough to leave laws, art, and literature which have been the wonder of nearly twenty centuries. Marcus Aurelius, the Roman emperor and philosopher, wisely said, "Our life is what our thoughts make it." And yet even after the Pilgrim Fathers with their enlightened beliefs came to this country, the delusions of Salem witchcraft overspread New England. A few years ago I saw a witches' cemetery in Maine, a mute testimony to the destructive power of human thoughts that have flowed in unnatural channels. From the beginning of history down to this very day superstition has haunted human lives. The courts and the Church have suppressed it, but not killed it.

JUST the other day I was talking to a woman of intelligence and refinement who in a joking way remarked that she was slated for seven years of bad luck. On the morning of New Year's day she had accidentally dropped a mirror, the first one she had ever broken. "It's really foolish to mention it," she said, "but I can't help thinking it is rather a bad start for the new year."

Others who have lately blasted their happiness for the next seven years by dropping mirrors may perhaps be interested to know how that depressing superstition started. Mary Queen of Scots is said to have summoned a witch to advise her in certain personal matters. This witch, like most of the sup-

posed witches, was old, wrinkled, and ugly. The divination which she performed for the benefit of the queen required

the use of a mirror and at a tense moment the witch happened to see her own face in the mirror beside the beautiful face of the queen. Enraged at the comparison, the old woman impulsively seized the mirror from the queen and hurled it down on the tiled floor, where it broke into "a thousand fragments."

Unfortunately for the witch, mirrors were expensive in those days, for glass mirrors had only recently been invented and they were used chiefly by the nobility. The queen therefore ordered her to be imprisoned for seven years, and that is where the seven years of trouble for mirror breakers originated.

NO DOUBT a person who has dropped a mirror will have trouble at various intervals during the seven years following. If the affliction is sickness, just think how much easier it is to blame the old broken mirror than to admit you have carelessly violated some law of health! If the trouble is the loss of money through a poor investment, again the mirror is your alibi. For if you can shift responsibility to that, you escape confessing that the poor investment was due to poor judgment.

Old subscribers may possibly remember a former invitation asking them to tell how they got out of their rut. W. N. Whitford, who lives in Vermont, sends this personal experience.

"My rut," he says, "was following in the footsteps of my grandfather, whose ideas then were two hundred years behind the times. I even learned superstition from him. Many times, Thursday night at eleven o'clock, I have gone out and plowed a furrow around the field rather than start Friday morning."

"I milked from six to eight cows every summer, and with pail and milking stool in my hands chased all over the lot calling to them to stand. Sometimes I was three to four hours milking them. We had a milk route in the village a mile away. I carried the heavy pails in a market basket. The empty ones I fastened to a string around my wrist. In the winter it was rather difficult when the snow was drifted deep—this is in Vermont—and sometimes I would not get through till ten o'clock at night.

"My wife stood it as long as she could, and one day said, 'I am tired of this Peter-tumble-down way of living. Let's Peter-up to the twentieth century's progressive ways.'

"So bright and early Friday morning I started in plowing, and had as good luck and even better than when I commenced the Thursday evening. In regard to milking, I had a stanchion put in the lot, and now I deliver the milk before dark. My customers have increased, and I haul the milk in a cart. I have ceased watching my neighbors, and attend strictly to my own affairs."

Plowing a furrow around a field was originally the means of checking the inroads of army worms till the crop could be harvested.

But unless the worms are actually threatening, which in Vermont happens about once in twenty years, the furrow turned at night is not a whit better than any other furrow, and unless you have plenty of good moonlight you are likely to get it crooked in the bargain.

I hope friend Whitford's letter will help others to see the mental comfort and the material benefits that follow independent thinking. Remember, too, that most superstitions have their roots in childhood, so let us pay some attention to the example we set our children. I wish that every FARM AND FIRESIDE reader would help destroy superstitious beliefs of all kinds, but especially the morbid ones like that of the broken mirror.

Such beliefs can do no possible good, but, on the contrary, even when only half believed, they cast a shadow over the future and stand in the way of complete happiness.

The Editor

Nurseries at Close Range

Methods That Insure Thrifty Growth of the Stock You Plant

By B. F. W. THORPE

HAVE you recently visited a big nursery where trees, shrubs, and plants are grown? If not, you have missed much and will be surprised, as I was, to find what an astonishing advance and progressive change has taken place in commercial tree and plant growing during the past few years.

I had the satisfaction last summer of spending several weeks in getting better acquainted with present nursery conditions in different parts of this country. Most FARM AND FIRESIDE readers probably know that all of the great nursery concerns have to grow a considerable portion of their stock away from their main nursery headquarters so as to get the advantage of different and helpful climatic and soil conditions. A tree or plant that has made a vigorous growth and root development from the start in the nursery, stores up vigor that helps to make it immune to attacks of disease, and such plants can also better fight insect pests.

One nursery I visited has been carried on for a full century by different generations of the same family. Sons and grandsons begin where the fathers leave off, to boost their business to the greatest possible efficiency. This and several other of our leading nurseries have come to have world-wide dealings. Shipments are made half around the globe to China, New Zealand, and Australia in addition to their home business. These foreign shipments spend weeks journeying through equatorial heat and then arrive in first-class condition as a result of the extraordinary good packing the shipments receive. Better yet, the stock grows after setting with but very small losses. The nursery has a record of shipping more than 60 cars of trees in one day during the height of a favorable season. The Pacific Northwest orchards are among its heavy customers. Some co-operative orders from that region have required a full train of cars to fill them.

There are now over 2,000 commercial nurseries in this country, having an aggregate area exceeding 200,000 acres. These concerns represent a total invested capital of a half-billion dollars, and the services of 50,000 men of special training are required to operate them.

During the summer season there are nearly five billion trees and plants growing in these nurseries. Of these, approximately three hundred million are young apple trees, and an equal number of other orchard tree fruits—peach, pear, plum, cherry, quince, prune, apricot, etc. Grapes and small-fruit plants aggregate five or six hundred million more; flowering plants, about two billion; and ornamental trees and shrubs, at least an equal number. To these we must add at least half a million of nut-bearing nursery stock for good measure. What a forest of fruit trees and oasis of flowers these nursery products would make were they all brought together and attractively set out for permanent growth!

Harks Back to Plymouth Rock

WE CAN get a better idea of the growth of our fruit industry by going back to its beginning in the Plymouth colony days, where Peregrine White, the first Englishman born in New England, planted the first apple tree in Marshfield in 1648. Two hundred years later this selfsame apple tree was still bearing fruit. Steadily the business of growing fruit trees, flowering plants, and ornamentals has kept pace with our national demands. Government figures now show that nursery crops have increased in value more than \$100 an acre in the past decade.

We occasionally hear some alarmist say that fruit production is soon to be overdone. But in the face of the growing appetite for good fruit among our own increasing millions, and the fruit hunger that must be felt among foreign countries as a result of war-ruined orchards, our surplus fruit should not go begging. Indeed, our average annual apple crop divided among our home population alone is now only 1½ bushels per capita, or a paltry apple a day between harvests. With the growth of co-operative selling and group-buying meth-

ods and the improvements in distribution now in sight, there is little cause for pessimism in the ranks of the fruit and flower specialists.

It should be kept in mind that these immense nursery industries are merely a specialized line of farming. In the first place, the soil is given unusually thorough preparation for each crop of trees or plants; the different kinds of soil—bottom land, upland and hill soils—are selected as best suited for the particular nursery crop to be grown.

Make Sure of Source of Stock

THE manuring and fertilizing are made to fit the crop, and, what is even more important for continued success, the various nursery crops are rotated to prevent the soil from becoming infected with diseases peculiar to different trees and nursery crops. As one studies the operation of a modern nursery business, he can better understand why it is that nursery stock secured from reliable nurseries will give so much better results than stock secured from nurseries where less attention is given to the right growing and development of the trees and plants. The nursery I visited employs close to 1,000 men during the rush work of the season. In 1915 a new storage building, covering more than five acres of ground, was first put into use. At the time of my visit last June, this immense storage building had been practically emptied, and workmen were hauling out the few



A planting board saves time, and a barrel cart keeps the roots moist until planted

trees and plants are grown, the work is systematized and their storage facilities are sufficient to keep the trees, shrubs, and plant varieties from becoming mixed in field and in storage. Hence, the trees and plants coming from these nurseries have a much greater surety of being true to variety and name, which adds materially to the value of such stock.

Let no one think for a moment that a big nursery is a place of soft jobs. There are periods when the watchword is "Double Quick" and every hand is

speeded up for weeks at a stretch. In addition to the fall and spring periods for regular hurry business in keeping up with orders, there are periods of budding and slipping and other forms of propagating when the work is simply a race against time to get the propagating completed before the definite period is past after which such work must wait until a full year has rolled round. But for a born horticulturist there is much of absorbing interest in many lines of nursery work. The young man who is a real student of plant and tree life can find occasional off hours when he can do some experimenting for himself. Some of the world's most noted horticulturists got their inspiration for later achievements by working in a nursery.

I was specially interested to learn that the nurseries which grow and sell shrubs, trees, flowers, and plants for home adornment are getting a heavy demand for such stock, particularly from farmers. This I find to be the case with nurseries in New Jersey, New

York, Pennsylvania, Ohio, Missouri, Iowa, and in fact wherever such stock is grown.

This same increase of interest in beautifying the farm is also shown by inquiries that come from FARM AND FIRESIDE readers. Along with such inquiries come requests for plans for laying out flower gardens and preparing lawns for seeding and setting to add to the attractiveness of the farm home.

Another frequent inquiry is for plans for making farm walks, drives, and approaches which will give individuality as well as beauty to a place. This growing interest in landscape-gardening is the best kind of evidence that the time is drawing near when farm home life is to count for more than it has done in the past. The farm is the natural place for a pleasant and effective home setting which the average city place cannot hope to equal. Every farm home has room for an attractive sweep of lawn flanked with trees and shrubbery, and at least a beautiful if simple arrangement of flowers. These, with a substantial over-arching gateway and a well-kept entrance driveway, will easily add \$1,000 to the selling value of almost any good farm.

This matter of planting and caring for shrubbery is a most fascinating one. Edwin H. Costich, in charge of Highland Park, Rochester, New York, told me last summer when I visited that beauty spot that in the park they now have over 3,500 different species and varieties of shrubbery and woody plants.

It is a most promising sign that the public parks having beautiful collections of trees, shrubs, and flowers are every year becoming more frequented by farm folk and city folk alike. As a matter of fact, many farmers are now better able to visit the parks and beauty spots within 50 or 100 miles of home by automobile than the average town family. The farmer's car is thus becoming an educator in favor of handsomer farm homes and farm grounds. Speed the day when we as a nation of farmers will make a closer study of the natural beauty of our places and reap the advantage both in the satisfaction to be realized and the monetary value that will follow!



The beauty of this place is due chiefly to the attractive lawn, shrubbery and trees. They cost little compared with the value they add to the property

loads of left-over trees that were to be burned.

Every big nursery has to grow some stock of rather uncertain demand with which to supply occasional orders. After the storage building is entirely cleared of left-over stock and has been cleaned and re-cleaned, it is thoroughly disinfected to make sure no disease germs or insect pests have developed through the summer season. It is just here that the well-established nursery concerns, having a complete and adequate equipment, are best able to insure satisfaction. Where scores of varieties of different



Plenty of moist moss and other protective packing prevents the roots from drying and bruising. Nursery stock has been successfully shipped to China and Australia

FARM and FIRESIDE

THE NATIONAL FARM PAPER

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January 20, 1917

A New Year Inventory

THE first month of the new year is a time for taking stock. It is then that the merchant invoices the goods on his shelves and balances his books of the year's business.

Now, stock-taking and book-balancing are just as important in country as in city. In a business way at least, what is good for the factory is also good for the farm.

At the close of the year the farmer may profitably take note of his receipts and expenditures of the twelve months, and at the same time do some careful figuring for the future. To fail to do so is to neglect one of the large opportunities for business betterment that the new year brings.

But it is not enough that the farmer look only where the bank balance beckons. It is equally important that he take stock of his soil—yes, and of himself. What of the farm and of the folks?

Has the farm been looked upon as a mine to be worked, or as a laboratory in which to work? While writing a balance in the town bank book, what of the soil balance which is each year being written in increased or decreased crop yields? Has the farmer been taking money out of one pocket and putting it in the other, thus believing that he was making money?

Then there comes the farm home. What of it? Is it all that it could be or should be? Has money been spent for another "forty" or "eighty" instead of for a new heat, light, or water system long planned for but always left until "some other time"? Have fences and outbuildings been allowed to fall into decay? Is the place beginning to look like "a widow woman's forty," or is it one that you and your children are proud to call home?

Then, too, it may be worth while for this farmer to take stock of himself, honestly to ask what kind of a farmer he is, what he is worth to the community, and whether or not he is exalting the great profession of farming.

What think you of such a New Year inventory?

Ladders and Limbs

IN AN appeal for greater care in the use of ladders, the National Safety Council reports that every year about 6,000 people are killed and 200,000 are injured by them. To avoid ladder accidents, these precautions are given:

Leave no tools and materials on top of the ladder; they may fall down on you when the ladder is moved. Raise and lower heavy objects with a rope; don't carry them up and down ladders. Move the ladder instead of reaching too far to one side and losing your balance. Remove from the ladder all extending

nails, splinters, and projections which may catch your clothes and cause you to stumble. Finally, don't hurry in using a ladder; take time to place it securely, also in going up and coming down.

Familiarity begets a thoughtless frame of mind unless we are occasionally warned by an outsider who can see the dangerous things we do much better than we can ourselves.

Speeding Up the Soil

INDICATIONS are legion showing that a lot of Southern farmers are now getting a new vision of better cropping systems which speed up their soils to greater accomplishments. One such Georgia farmer who has until recent years continued to bow loyally before the shrine of "King Cotton" has now become a follower of "General Diversity."

November 1, 1915, he sowed four acres to wheat, and in May, 1916, harvested 100 marketable bushels, which sold for \$200. The same four acres were immediately fitted and sowed to peas from which ten tons of hay were secured, and sold for an additional \$250. He was then able to seed a cover crop for winter pasture and spring green-manuring. Thus by keeping his land constantly at work, and aiding it with 300 pounds to the acre of commercial fertilizer, more cash revenue was secured from four acres than many a farmer, North or South, realizes from ten times that area.

The Grange Proclamation

WITH commendable enterprise the National Grange has issued a proclamation absolving the farmer from responsibility for the high cost of living. This proclamation has been sent broadcast to the press of the country. Among the reasons assigned for the present high prices of foodstuffs are:

Climatic conditions, resulting in crop shortage.

Increased cost of farm labor, machinery, and equipment.

Expensive methods of distribution employed by middlemen.

Gambling in food products, especially those in storage.

Alarming increase of insect and fungous pests.

Lack of market facilities in some towns and cities.

A heavy increase in the taxation of farm lands.

These are all good reasons which any court of inquiry will find to be supported by ample evidence. We can only conjecture the effect on public opinion, but the proclamation will at least demonstrate that the farmer is determined to have a voice in this matter which concerns him so vitally, also that he has wearied of submitting to unjust charges, and is now placing responsibility where it belongs.

Dogfish Broth for Plants

THE shortage of commercial fertilizers in this country during the last two years, caused by the war, is stimulating Yankee ingenuity to find new sources of plant food. One of these is a novel but promising combination of sea products—viz., ground rockweed, which is plentifully brought in by the tides on the New England coasts, and dogfish, a by-product of the great fishery industries of the North Atlantic.

The proposed combination of these two ocean products gives promise of furnishing a fertilizer satisfactorily balanced for use as a plant food for potatoes, truck crops, small fruits, and all crops requiring rapid pushing to maturity.

The Government Bureau of Fisheries has long been casting about for a solution of the dogfish problem, which now threatens the food fisheries as seriously as the land dog threatens the sheep industry.

To Revive the Smokehouse

THESE are hog-killing days. Out in the country districts are many poles of plenty on which hang the carcasses of the butchered swine, clean and pink. These poles are real proclamations of plenty. They foretell feasts. There are to be good things galore: sweetbreads and scrapple, sausage and spareribs (not too spare), breakfast bacon with the flavor of the farm rather than of the factory, and—but not until months later—country-cured hams, brown as berries and having an indescribable aroma and a never-to-be-forgotten flavor.

All this is true of some farms, but not of all. Official investigations made right out in the "hog and hominy belt" of the Central West show that only about 70 per cent of the farmers cure sufficient meat for their own use, and that less than five per cent have any surplus for sale. So 30 per cent of the farmers in these States are purchasers, in large or small amounts, of packing-house products. This means the payment of freight or express charges both ways between the farm shipping point and the big central market, also profits to at least three and often five or six dealers. There is the further loss represented by the possible profits which might be realized from the sale of surplus hams or other premium pork products.

In one corn-belt State it is estimated that the farmers annually spend in excess of \$7,000,000 for meat which they might easily provide on their own farms. The figures in other States are believed to be bigger.

In order to change these conditions the Missouri State Board of Agriculture five years ago inaugurated a farmers' ham and bacon show. The exhibition has grown until it is now one of the big features of Farmers' Week, as the annual convention of Missouri farmers is called. The show is aiding in establishing standards, and during the week the showroom is a clearing house for ideas in meat-making as well as an exchange for recipes. Best of all, there is a big display of meat attractively trimmed and properly cured.

The object of the Missouri show, it should be said, is not to rush every farmer into the retail meat business. The big object is to get more farmers to cure the meat needed for home use, to bring about the revival of the country smokehouse.

Our Letter Box

Good Times for Mother

DEAR EDITOR: There is so much in the papers about giving the young people a good time and leisure to do as they like in order to keep them at home. But why is it that seldom is a thought voiced in behalf of the tired, overworked mother? Those that are nearest and dearest to Mother are being reared and encouraged to think that the children should have leisure to read, play, visit, entertain, have outings whenever they wish, and have a general good time and enjoy life. How about Mother? "Oh, she never cared for such things. She never cared for the things we young folks like." But how would it seem to the young people if Mother were suddenly called away, who then would take her place at once and minister to their every wish as Mother did?

Many times, if the wife happens to pick up a paper to read a few minutes while she rests, as she waits for the men to come in for their meals, some men will begin to fume because she isn't continually on her feet or with some sewing in her hand. Those are the kind of men that insist on three square meals every day in the year, Sundays included. She is always at home. She has to be nurse, cook, housekeeper, and maid of all work besides taking care of calves, pigs, and raising a large flock of poultry every season, and looking after the eggs, turning the separator, and making the butter. Some day Mother will take a long rest, the family will get along without her then. A mother should stand for something more than a human automatic machine.

The members of a family should cooperate with each other in work as well as pleasure, everyone should take hold and help. Many hands make quick work and light hearts, and Mother is happy when she knows she is lovingly thought of.

LAURA MACUMBER, Michigan.

His Kick Came Back

DEAR EDITOR: The experience given by E. L. Vincent in FARM AND FIRESIDE leads me to tell how we were able to overcome the kicking habit of horses when they made trouble by kicking in their stalls. We could find no cause for the horses to kick, and tried the plan of tying a round, smooth green stick of timber four or five feet long and four to six inches in diameter about three feet from the floor and the same distance behind the horse when in its natural position in the stall.

The pole was hung from the ceiling with a rope, and of course when the horse kicks and strikes the pole it rebounds and strikes the horse for each kick that it makes. A short engagement kicking the pole will take the "kick" out of any horse. And after a short period the pole can be removed without much danger of the horse taking up the practice again.

CHARLES A. CURRY, Pennsylvania.

Fence In the Dog

DEAR EDITOR: Referring to your article headed "Fencing Out the Dog," I desire to offer a suggestion. Why not fence in the dog? The law of this State (Missouri) requires me to fence in my horses, cattle, hogs, sheep—in fact, everything I own or may own, except dogs. Now why not include the dog? Any fair-minded investigator will agree with me that the dog is, at best, only semi-domestic; he is a domestic animal all right during the daytime, while his master is out and about his farm affairs. But when the master rounds things up and goes inside, leaving doggie to himself and his own resources, the said dog becomes a predatory animal. Why not require his owner to keep him at home also?

ISAAC H. DILLON, Missouri.

Straw for Singeing Hogs

DEAR EDITOR: I read with great interest the article written by E. L. Wood on gasoline singeing of hogs, and I thought the following might be of interest:

I was born and lived in the county of Hampshire, England, until I was eighteen years of age. That county being noted for its most excellent bacon, my father always raised sufficient pigs for family use, and I well remember the butchering-time performance. The hog to be killed was laid on bench or platform and held firmly by attendants. The butcher then proceeded to stick the animal, and with a pail at hand caught the blood to make blood pudding. Sufficient bright dry wheat straw was then spread on the ground, the carcass was placed on it and more straw was then shaken over the carcass, and a match applied until the bristles were all consumed.

The carcass was then hung up and cleaned in the orthodox manner. After cooling off it was then cut up and salted, after which the hams, shoulders, and sides were smoked by using turf for the fire with which to smoke the meat, and then hung on a rack to keep. The flavor of that bacon is one of the many things I remember as a boy, and often when eating of the breakfast bacon of the meat packers of this fair land I compare it unfavorably with the Old Hampshire bacon.

GEO. E. TILLY, New York.

Extraordinary Litters

DEAR EDITOR: We have a three-year-old sow that has had 59 little pigs and has raised 50 of them. The first litter she had 10, the second 8, the third 11, the fourth 14, and the fifth 16. We have sold all the pigs at \$3 apiece.

GLADYS GROVES, Kansas.

Likes the Paper Very Much

DEAR EDITOR: You and your fellow associates compose the only firm from which I have ever had a chance to get 100 per cent value on an investment. My sister has taken FARM AND FIRESIDE for several years, and she has no intention of giving it up. I am now living with her, so we read the same issue.

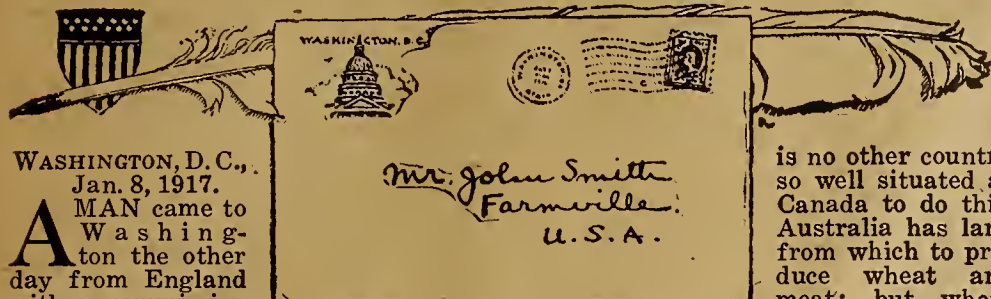
I consider FARM AND FIRESIDE the most up-to-date farm paper published, and can hardly wait for the next issue to come. There is so much good advice on everything pertaining to the farm and farm life that I cannot see how anyone can live and be up to date without it. All of my near-by neighbors are subscribers. I wish you years of success. CHAS. A. MARTIN, Indiana.

EW

A Greater Canada

Proposed Plans to Hasten Its Development

By JUDSON C. WELLIVER



WASHINGTON, D. C.,
Jan. 8, 1917.

A MAN came to Washington the other day from England with a commission from the British Government to find out about the prospects for food supplies for the next three or four years. He was mysterious concerning his mission. But from people who were entitled to get somewhat into his confidence I learned some highly interesting things.

Great Britain, in behalf of itself and its allies, is looking around to discover whence it will be able to buy food for several seasons ahead. Also, it wants to know the industrial producing capacity, present and potential, of countries from which it hopes to buy necessities of war.

Here are some of the things that were told me in this connection, as representing this gentleman's understanding of the present state of mind of the allied nations:

They want to be certain of food supplies for an indefinite time.

They are afraid the United States, despite that it can produce more food than any other country, may become a poor source of supplies because of the possibility of "freak legislation."

"Freak legislation" means legislation which, in the supposed interest of peace, would undertake to prevent export of American products to belligerents.

They want to know how greatly Canada's production of wheat and meat can be increased through proper efforts.

They are determined to make themselves independent of the United States just as fast and far as possible.

This applies to factory-made munitions of war as well as to agricultural products.

Canada is regarded as the most promising market in which to encourage the production of both factory and agricultural necessities. Orders for these things, I am assured, are being transferred to the Canadian side of the boundary line just as fast as possible. It is calculated that if marked preference is given to Canada that country will be able to draw a great supply of labor for both industry and agriculture from the United States. There is no other like reservoir of skilled labor available in the world at present.

Canada, it was explained, has limitless land and other natural resources. Whatever it lacks it can get from the United States. It lacks capital and labor. But the United States has the labor, willing to migrate across the line if wages are made high enough. Once established there, raising wheat and meat, making cannons and shells and explosives, it will be in no danger of interference by legislation. The products will be available for export to the European countries and battlefields without any arguments. There will be no danger of embargo legislation or taxes on war profits.

A FEW days after this story was told to me the cables from Europe described the alleged plan of the allies to quit sending their ships to American ports, and instead to have them call only at Halifax. There, in a Canadian port, under the British flag, they could send their armed merchantmen, take on cargoes of products made in Canada or forwarded from the United States to Canada by rail, and enjoy absolute freedom from the danger of submarine attacks. Halifax would become one of the most important ports in the world. It would take over, largely, the business now done by the ports of this country. True, it would cost a great deal to forward cargoes by rail to Halifax; but, on the other hand, Halifax is on an average two days nearer to British and French seacoast towns than are the ports of this country, and with ocean shipping so scarce and expensive as it is now this is a highly important saving. The seeming extravagance of rail shipments to Halifax, and transshipment there, might easily turn out no extravagance at all.

The long and short of it is that this reported plan means that Canada would be supplied with capital and the contracts, and turned loose to draw away our labor and industry to work under the British flag, for the allies. There

is no other country so well situated as Canada to do this. Australia has land from which to produce wheat and meat; but where would it get labor? The Argentine likewise has plenty of room to raise wheat and corn and meat, but it has no great neighbor like the United States from which to draw people to do the work. Canada is the one undeveloped country in the world that possesses the resources and has close at hand a huge supply of just the right kind of labor.

Possibilities involved in such a scheme are at least calculated to make Americans take notice, particularly American tillers of the soil, for Canada's farming resources are those to which, I am assured, most immediate attention is aimed, and which would be most readily susceptible to quick development. Such a project, of course, would only be undertaken with realization that it must be sustained after the war as well as now. It would involve immense investments in Canada, to be continued after peace should have returned, and the end of it would be to make Canada a real competitor of the United States.

A FEW years ago California and Wisconsin were watched from all over the country as the sociological experiment laboratories of the nation. Now attention is being directed to North Dakota, because in the recent election the farmers carried the State and brought themselves into control of governor and legislature, with the avowed purpose of having a farmers' administration of a farmers' State.

During the recent convention of farmers' organizations in Washington much consideration was given to the North Dakota program. Ray McKaig, master of the North Dakota Grange, announces that the farmers, having control of the state government, intend, so far as possible, "to bring New Zealand into North Dakota." By which, as a starter, he says they mean to:

Establish state-owned and controlled elevators at terminal points. The co-operative elevator experience of recent years has given the farmers confidence that they can succeed in this, and make profits both for the grain grower and the State.

Erect and operate state-owned flouring mills. The North Dakota agricultural college has been studying wheat, and declares that the best flour is made from No. 4 wheat. The great mills of adjacent States buy that wheat at a very low price and, Mr. McKaig says, sell the flour from it at as high a price as the flour from No. 1 hard wheat. So the State, to keep a profitable industry at home and save transportation charges both ways, will build some flouring mills of its own.

Build a state-owned packing plant and stockyards establishment. At present hogs and steers must be shipped hundreds of miles outside the State to packing centers, and it is believed by the Dakota farmers that between freight charges and profits to markets and slaughterers they get altogether too low prices for their stock. So the State will go into the business and see what it can do.

Establish a state-owned and managed insurance business. This has to do first with the hail insurance, on which premiums are in some cases as high as 10 per cent. Farmers are compelled to take out hail insurance because the losses, when they happen, are so complete as to mean ruin unless insurance is carried. Just across the line, in Canada, state insurance gives the same protection for less than one per cent.

Inaugurate a single-tax régime. No more taxes on improvements; higher taxes on unimproved lands, lower ones on improved farms; so that there will be no speculation in holding lands "for a rise." It is claimed that speculators have held back the State's development, keeping immense acreages out of cultivation. The taxes on these holdings will be made so high that they will have to be sold. Mr. McKaig declares that the State is thoroughly ripe for this experiment, and that, in fact, all these projects are certain to be carried out.



Foot the Foot-Bills with Neolin

As the modern grain drill is to sowing by hand—so is Neolin to the leather sole—for Neolin is a modern sole.

Neolin, the better-than-leather shoe sole. Neolin which gives what leather fails to give.

Neolin, which gives wear so dependable that rough fields, sharp stones and pounding, tearing work cannot force it down until it has forced your shoe-bills down.

Neolin which gives waterproof quality in sodden roads, or wet-soaked fields!

Neolin, which gives comfort and grip-ground tread to feet which stiff leather has made tender feet.

Neolin, which has the approval of the government itself, after the severest Navy test.

And remember: Neolin cuts the children's shoe-bills down particularly. And its looks for Sunday wear are what the women like. Neolin comes in black, white and tan—insist upon it. Ask for Neolin with the accent on the "O". And to beware of imitations, mark that mark; stamp it on your memory: Neolin—

—the trade symbol for a changeless quality product of

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Neolin

Better than Leather



APOLLO ROOFING

Made from APOLLO-KEYSTONE COPPER STEEL Galvanized Sheets—the most durable, rust-resistant galvanized sheets manufactured for all forms of exposed sheet metal work.

Actual weather tests have proved conclusively the superiority of this material for Roofing, Siding, Culverts, Tanks, Silos, Cisterns, and similar uses. Look for the Keystone added below regular Apollo brand—it indicates that Keystone Copper Steel is used. Demand the genuine—accept no substitute. Our free booklet "Better Buildings" contains farm plans, information and instructions for the application of metal roofing and siding. It is of special interest to every farmer and owner of buildings. Write for free copy.

AMERICAN SHEET AND TIN PLATE COMPANY, Frick Building, Pittsburgh, Pa.

Farmer's Favorite 4 Inch Grain Drills

This New Type Drill operates perfectly under the most severe and exacting conditions to be found in any section of this country. Sows the grain in rows closer together than has been customary. The same amount of seed as sown with the wider spaced machine is distributed by this new type drill through more rows per acre, and thinner in the row, giving each seed more root room and a chance for a better stand.

The discs are so closely spaced that a highly cultivated seed bed is obtained with an almost total elimination of weeds.

Double Run Force Grain Feed

Positive force feed for both grain and fertilizer. Very accurate; even distribution, no bunching. Has two seed channels or two feeds in one. Different sized seeds can be sown in wide range of quantities without injury to the seed. The feed is one of the vital parts of a drill as on it depends the accurate sowing of the grain.

Ask your dealer for information on the special features combined in the new type Farmer's Favorite 4 Inch Grain Drill or write us for descriptive pamphlet.

The American Seeding-Machine Co., Inc.
Springfield, Ohio



Are Your Cows a BURDEN?

Many cows are a constant drag on their owners when they could just as well be good producers—if properly handled.

Don't forget that your cows can get physically "off color" just as you sometimes do. Watch the milk yield; if it is going down without apparent reason, something is wrong with the cow. Overfeeding is likely to make the condition worse; she needs a medicine that will clear up and strengthen her organs of production.

Kow-Kure is making thousands of new friends among the best dairymen every year, because it supplies this great need. It is a cow medicine, pure and simple—not a food. It has great curative and tonic powers that immediately act upon the digestive and genital organs and enable the cow to thrive on her natural food. Kow-Kure has back of it twenty years of success in making backward cows profitable and in the prevention and cure of Abortion, Barrenness, Retained Afterbirth, Milk Fever, Scouring, Lost Appetite, Bunches and other common ills.

You can buy Kow-Kure from the best feed dealers and druggists. Sold in 50c. and \$1.00 packages.

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FREE BOOK

"The Home Cow Doctor"

This useful book that should be in every farmer's library is yours for the asking. It may be worth hundreds of dollars in a critical moment.



Dairying

Cheese Taste Nearly Lost

By R. Robinson

AMERICAN-BORN citizens eat less cheese per capita than any other country where dairying and cheese-making are carried on as a part of the nation's farm production. Our total consumption is only about three pounds each for our whole population in a year.

Why this should be so is not apparent at first sight, for cheese is relatively cheaper than any kind of the meats in common use, when the amount of food value is counted. So far as farming communities are concerned, the principal reason lies in the fact that cheese-making at home is a lost art except in a few isolated cases.

One hundred years ago cheese-making was considered necessary to the success of every first-class New England farm, being for the most part superintended by the farmers' wives and daughters, who plumed themselves on the excellence of their butter or cheese, which was made not only for sale but large quantities were also consumed by each family at home.

Cheese, especially, was looked upon as a part of their regular diet. As time went on, the factory system became more and more in vogue and far more cheese was produced, most of which was exported.

Owing to the unwillingness of most farmers to pay out money for anything used on the table which they consider a farm product, less cheese was consumed in the farm home during each succeeding generation, until for many years past cheese on a farmer's table is so rare as to be almost unknown.

During the time when the part of our nation now known as the Middle West was being settled, land was cheap, and in most cases had been left by nature all ready for the plow. Illinois, Iowa, Nebraska, Kansas, Missouri, and parts of Wisconsin and Minnesota were raising oceans of corn and millions of hogs, as well as large quantities of beef.

Same Old-Time Prices

Further west a million square miles of valley, hill, and plain were teeming with fat cattle. Any of us who are fifty years old or upward can call to mind the prevailing meat prices from 1870 to 1900, when mess pork often went down to \$10 a barrel and no bidders; a quarter of good beef could be bought for two cents a pound.

The writer while a young man, making cheese for a co-operative company, raised, cured, and sold "long clear" bacon for \$7 a hundred retail, and was glad to take it; and fat geese, 10 pounds each, for \$3 a dozen.

Cheese sold for the English market some years for six cents a pound wholesale, and you could buy three pounds for a quarter in the stores; but even at that, pork or beef or fowl was counted cheaper for the city laborer to buy, so

that whatever the taste for cheese might have been it was lost between the close of the Civil War and 1900.

For a generation Americans reveled in meat-eating—pork, mutton, beef, (veal was held in contempt), fowl, venison—a riot of meat three times a day and between meals. As late as 1900 we bought the best cuts of venison for five cents a pound in Michigan. At the present time we pay 15 cents a pound for the poorest cut on the block of any kind of meat, while the better cuts cost from 20 to 35 cents; and instead of buying a good goose for 25 cents, we pay a minimum of \$2 for any goose that is able to squawk at killing time.

It really hurts me to mention turkey, because anyone who would pay \$1.50 for a dressed turkey weighing 16 or 18 pounds was counted grossly extravagant, or else was possessed of so much money he did not know what to do with it.

Meanwhile, the taste for cheese has gone through disuse, bred out as it were. Now it will take several years for our people again to acquire it through the slow process of demonstration and education.

Profitable 16-Year-Old Cow

By Anna Wade Galligher

WE HAVE a grade Jersey cow that was seven years old when we bought her, and we have had her for nine years. This cow has brought us eight fine calves, though only two of them were heifers. While we are aware that a sixteen-year-old cow would be considered almost worthless by professional dairymen, we do not believe in sacrificing a good cow while she is still in her prime.

Of course, opinions differ on this subject. Some say that a cow is usually at her best as a milker when five years old or thereabouts. Others say seven. I know of one dairyman who will not keep a cow after she is eight years old, while still another tells us a cow is seldom at her best as a butter cow till she has reached her tenth year, and that is our experience.

Many who will not agree with this probably have never kept a cow to such an advanced age. When our cow was a little over ten years old we saved all of the cream from her milk for seven days and then churned it. It made 15 pounds and 4 ounces of butter. Four years later a similar test gave a result of 14 pounds and 2 ounces.

She has always been at her best during the winter months because she freshens in the fall or early winter. She is dry, as a general rule, from six to eight weeks each year. In summer we feed a little grain along with the pasture, and in winter we give plenty of good hay and fodder along with a generous quantity of ground grain twice a day. We feed clover hay when we can get it.

The best ration for our cows that we have ever tried is a large bucketful of cut clover, scalded and mixed with a generous quantity of bran and corn meal to which has been added a little oil meal and salt. It is fed twice a day in winter. The old cow I have mentioned produces more butter year after year than any of the young cows we keep.

EDITORIAL NOTE: Most cows reach their greatest commercial value at about seven years of age, but animals of twenty years and more have been found to produce milk profitably. Don't discard any good cow because she is old. Profitable production of milk and offspring should be the guide.

As low as \$7.90

\$10,000.00

SAW

Backs this Hertzler & Zook Portable Wood

This is the cheapest saw made. Only \$7.90 saw frame to which a ripping table can be added. Guaranteed 1 year, money refunded and all charges paid if not satisfactory. Write for catalog.

Hertzler & Zook Co., Box 9, Belleville, Pa.

Quaker City Feed Mills

Grind corn and cobs, feed, table meal and alfalfa. On the market 50 years. Hand and power. 23 styles. \$3.80 to \$40. **FREE TRIAL.** Write for catalog and farm machinery bargain book.

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You can't afford to afford a milker that has done less than HINMAN MILKERS

Milked 140,000,000 cows the last eight years. Milks valuable registered cows throughout this country and the world. Over 22,000 sold—more than all other milking machines combined. So simple that a boy can milk eighteen to twenty-five cows an hour. This simplicity also means low first cost and low upkeep cost.

No complicated pulsating mechanism—no air pipe lines—no vacuum tanks. Simple combination of pump, vacuum in valve chamber and natural action teat cups—no upward squeeze.

Write for Big FREE Catalog if you milk ten cows or more.

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SERVICE DEALERS EVERYWHERE. WRITE FOR NAME OF ONE NEAR YOU.

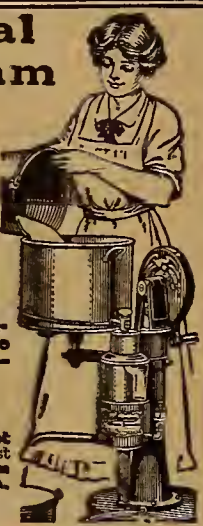
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Thousands In Use giving splendid satisfaction justifies investigating our wonderful offer: a brand new, well made, easy running, easily cleaned, perfect skimming separator only \$16.95. Skims warm or cold milk closely. Makes thick or thin cream. Different from picture, which illustrates our low priced, large capacity machines. Bowl is a sanitary marvel and embodies all our latest improvements. Our Absolute Guarantee Protects You. Besides wonderfully low prices and generous trial terms, our offer includes our—

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Whether dairy is large or small, or if you have separator of any make to exchange, do not fail to get our great offer. Our richly illustrated catalog, sent free on request, is a most complete, elaborate and interesting book on cream separators. Western orders filled from Western points. Write today for catalog and see our big money saving proposition.

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160 ACRE FARMS IN WESTERN CANADA FREE

Canadian Farmers Profit From Wheat

The war's devastation of European crops has caused an unusual demand for grain from the American Continent. The people of the world must be fed and wheat near \$2 a bushel offers great profits to the farmer. Canada's invitation is therefore especially attractive. She wants settlers to make money and happy, prosperous homes for themselves by helping her raise immense wheat crops.

You can get a Homestead of 160 acres FREE and other lands at remarkably low prices. During many years Canadian wheat fields have averaged 20 bushels to the acre—many yields as high as 45 bushels to acre. Wonderful crops also of Oats, Barley and Flax. Mixed farming as profitable an industry as grain raising. The excellent grasses full of nutrition are the only food required for beef or dairy purposes. Good schools, churches, markets convenient, climate excellent.

Military service is not compulsory in Canada, but there is an extra demand for farm labor to replace the many young men who have volunteered for the war. The Government is urging farmers to put extra acreage into grain. Write for literature and particulars as to reduced railway rates to Supt. of Immigration, Ottawa, Canada, or

M. V. McINNES, 178 Jefferson Ave., Detroit, Mich.
W. S. NETHERY, Interurban Bldg., Columbus, O.
Canadian Gov't Agts.



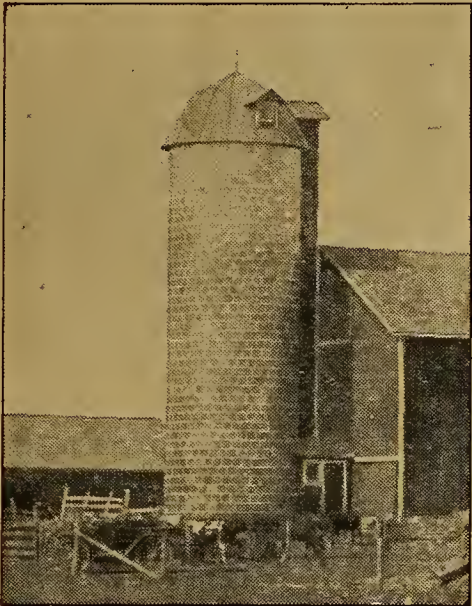
The factory system of cheese-making has certain mechanical advantages, but it has allowed the farm appetite for cheese to dwindle

Silos Built by Contract

"I WANT to get the opinion," writes an Indiana dairyman, "of someone who has built silos both with home labor and by contract. Which is the best plan to follow?"

He fails to give the kind of silo he contemplates building, nor is the size mentioned. In the early days of silo-building, when silos were more or less experimental, most of them were put up by farm labor according to printed directions or under the supervision of some college or state demonstrator. This applies especially to wood-lined silos, stave silos, pit silos, and those made of cement plastered over metal lath.

The contract system has developed with the demand for larger silos and silos requiring more than average skill or special building equipment. This includes those made of solid concrete, cement staves, tile, and brick. Over 75 per cent of large solid-concrete silos are



In building permanent silos skilled labor is as important as good materials

now built by contract, and practically all of the silos made of concrete staves are built or supervised by experienced silo contractors.

Usually the owner furnishes material for the mortar, also the unskilled labor, for which he is credited at a specified rate. In nearly all instances he hauls the materials. The construction of a large permanent silo is quite an undertaking, requiring at least an experienced foreman and, in the case of tile, skilled masons. For work of that class the contract system is preferred. You will get a better silo in most cases, and the work will be completed sooner than if you attempt to work silo-building in with other farm work.

The experiences of readers on this subject are invited.

Eastern Milk Values

By James Macpherson

A DEFINITE contribution to practical dairying is found in the new circular of the Massachusetts Extension Service, entitled "The Cost of Milk Production." Counting grain, roughage, housing, care, value of cows, incidental expenses, and the cost of producing a quart of milk in different sections of the East is as follows: Massachusetts, 5.38c; Connecticut, 4.78c; New Hampshire, 4.13c; New York, 4.31c.

The kind of cows, size of herds, and methods of handling are partly responsible for the variation in the figures, but the amounts given are the most accurate to be had and represent conditions as they actually exist at the present time.

In conclusion, the author, J. B. Lindsey, says: "It has often been asked how the dairyman has been able to produce and sell milk at four cents a quart. Stated in a few words, he has done it by selling his roughage to his cows at less than its farm value, by working for lower wages than he and members of his family might secure elsewhere, by accepting a lower rate of interest than five per cent, and by getting such products as eggs, milk, and garden products at a minimum cost. It is not believed that the dairyman is to be blamed for the poor returns because of low production, poor methods, or a wrong system of farming. In the writer's opinion the trouble lies primarily in the fact that the dairyman has not received enough for his product."

Among the suggested methods of bettering conditions are the improvement of dairy herds by better breeding and the community development of a single breed, a better selection of fodder crops, particularly clover, alfalfa, peas, and silage, the more general use of manure and fertilizers on fields used to raising cash crops, such as potatoes, cabbage, and the like.

Originators of the Famous O. I. C. Swine 1863

Two O.I.C. Hogs Weighed 2806 lbs.

Why lose profits breeding and feeding scrub hogs? Two of our O. I. C. Hogs weighed 2806 lbs. Will ship you sample pair of famous O. I. C. hogs on time and give agency to first applicant. We are the most extensive breeders and shippers of pure bred hogs in the world.

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We have bred the O. I. C. Hogs for 52 years and have never lost a hog with cholera or any other contagious disease.

Write-to-day-for Free Book, "The Hog from Birth to Sale"

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FARMERS HANDY WAGON

Low steel wheels, wide tires, make loading and handling easier. We furnish Steel Wheels to fit any axle, to carry any load. Plain or grooved tire. Catalogue sent free. EMPIRE MFG. CO., 368, Quincy, Ill.

FREE—Postpaid This Big Sample Box of My Famous Healing Ointment

I want you to see for yourself what a wonderful healing preparation CORONA WOOL FAT COMPOUND is. I want to prove to you on your own horses and cows and WITHOUT A CENT OF COST, how quickly it will heal and cure Split Hoofs, Barbed Wire Cuts, Grease Heel, Galled Shoulders, Hard and Contracted Feet, Mud Fever, Corns, Scratches, Thrush, Quarter Cracks, Boils, Ulcers, Old Sores, Caked Udders and Sore and Inflamed Teats on cows.



C. G. PHILLIPS The Wool Fat Man

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The Wonderful Healing Compound

is unlike anything you ever tried or used. Don't confuse it with salves which contain grease and blister compounds. This remedy will penetrate the hoof of a horse which is 60% to 70% water. It is not a grease but the fatty secretions extracted from the skin and wool of the sheep. It is readily absorbed by skin and hoof, penetrates to the inflamed inner tissues and

Heals Without Leaving a Scar

CORONA does not burn or blister, grows hair over cuts and sores, causes no pain, soothes and heals surprisingly quick. The free sample will prove my claim. A postal brings it postpaid, and I'll also send you my free book "HOW TO TREAT HOOF, WOUNDS, SORES, etc." Send for both today. Be sure to give name of your Horseshoers.

C. G. PHILLIPS, Mgr. THE CORONA MFG. CO., 25 Corona Block, KENTON, O.

How To Treat Hoofs Wounds Sores etc.

(23)

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At Our Risk. Then if pleased you can keep it and pay only a little each month out of your extra cream profits until the machine is paid for. In this way the separator itself will earn its own cost—and more before you pay. You won't feel the cost at all. If you do not need a large capacity machine you can obtain a smaller one on payments as low as

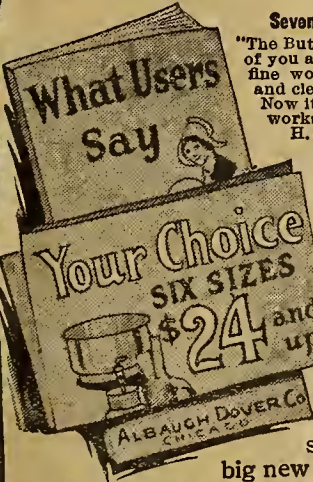
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No Interest To Pay—No Extras

The prices we quote include everything. You have no extras to pay—no interest. You buy direct from the manufacturer and save nearly half. We give 30 days' trial on your own farm. During this time if you don't find the New Butterfly the lightest running, easiest cleaning, and best all around separator on the market (regardless of price) you don't need to keep it. Just send it back at our expense and we will refund what you paid, including all freight charges both ways.

Used on More than 100,000 Farms

Over 100,000 New Butterfly Cream Separators are now in use. No doubt some of them right in your own neighborhood. We have been advertising in this paper for years—the publishers know us and know we do just as we agree. Read these letters from just a few of thousands of satisfied owners:



Seven Years Old—Runs Like New
"The Butterfly Separator we purchased of you about 7 years ago is still doing fine work. I recently took it apart and cleaned the gears with coal oil. Now it runs like a new machine and works as well as ever."
H. S. Stonebraker, Kokomo, Ind.

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"We would not do without our Butterfly Separator or exchange it for all the other machines we have seen. Our little girl, 12 years old, runs it like a clock."
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Why not get one of these big labor-saving, money-making machines while you have the opportunity to do so on this liberal self-earning plan? Let us send you our big new illustrated Catalog Folder showing all the machines we make and quoting lowest factory prices and easy payment terms. We will also mail you a book of letters from owners telling how the New Butterfly is helping them make as high as \$100 a year extra profit from their cows. Sending coupon does not obligate you in any way. Write today.

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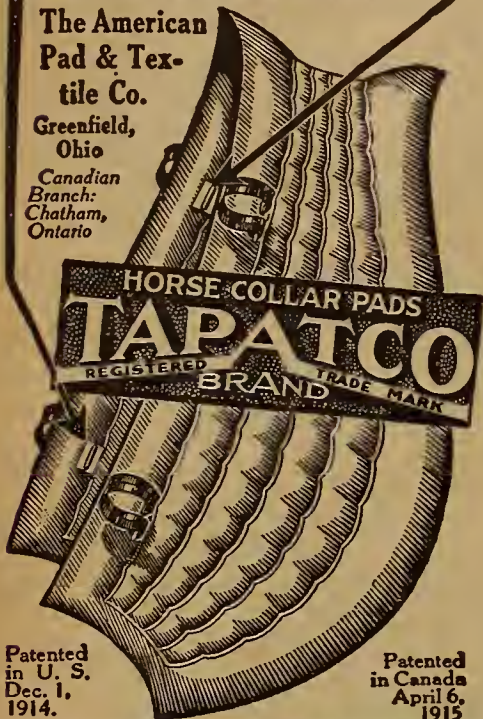
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Live Stock

Feeding the Brood Sow

By W. L. Blizzard

THAT the brood sow is doing double duty during pregnancy must not be overlooked. Not only is she keeping up her own bodily function, but the development of the fetal litter is constantly increasing the drain on her system. Although feeding at this time will not need to be so heavy as after the pigs are farrowed, it should be liberal. The sow's condition should be good, neither too fat nor too lean. You cannot hope to get a good strong litter and maintain the sow in a half-starved condition. It is the wrong idea to think that a sow can give birth to a strong litter of pigs after having gone through a four months' fast. Therefore, to obtain a good, strong, healthy litter of growing pigs we must start to feed them through their dam before birth.

If a brood sow is fed nothing but corn, she will become lazy and just move around enough to get her feed and then go back to sleeping quarters. She may look nice and sleek and pleasing to the eye, but she will not bring those robust, strong pigs that her sister will who has to hustle more for her living.

The feed should be composed of a variety, and should be as nearly a balanced ration as possible, containing the proper amounts of both fat and bone-making material and never a solely all corn or all kafir ration.

Every hog raiser has to take into consideration the feeds that are accessible to him. Those that are grown upon the farm are of first importance. But it will pay any breeder to buy tankage to balance his corn or kafir.

Corn and kafir are both markedly deficient in muscle and bone forming materials. For that reason they should be balanced with a feed that will remedy this. Tankage is a protein feed and balances corn or kafir. If alfalfa can be supplied, it also furnishes the muscle and bone forming material, but not so well as tankage.

A Ration for Sows

A ration composed of kafir or corn 50 parts, shorts 45 parts, and tankage 5 parts makes an excellent ration for brood sows carrying litters. Alfalfa hay supplied in racks in addition to this feed is also beneficial.

The addition of bran to this combination is of great benefit as the sow nears farrowing time. It gives bulk to the ration, helps to keep down the craving appetite, and has a beneficial effect on the digestive system.

The sow should receive enough of this feed to keep her in good condition. She needs this condition for reserve for the first two or three weeks after farrowing, as it takes about this much time to get her on good feed. A sow that has become too fat on corn or kafir alone is the one that has disastrous results.

During the winter more corn will be needed to keep the sow in good health, because it is much harder to supply green feed. Rye or wheat pastures will

supply green feed part of the time. Roots are valuable to supply this green feed and give bulk to the ration; but as roots are not grown very extensively in this State, alfalfa hay, preferably the last cutting, will take the place of it when the rye or wheat pasture is not available. Charcoal, lime, and salt should be accessible at all times. These meet the hog's craving for a mineral matter in the feed. It is best supplied in a self-feeder. The constant use of such a preparation with a varied ration will in a large measure prevent a brood sow from eating her pigs at farrowing time.

The sow needs all the pure air that she can get; in good weather when there is sunshine she should have full access to both. Furthermore, she needs exercise every day. Some of our best breeders practice turning their hogs out in the field and letting them roam over it if they have been properly fed; it gives them good exercise and a good opportunity to breathe pure air.

What Exercise Does

Sunshine and exercise has a good influence on the unfarrowed litter. The sow that fails to exercise is liable to become out of condition and bring a weak, puny litter. She should have a dry, warm sleeping house kept in a sanitary condition and furnished at all times with good bedding so that they will not pile up during the extremely cold weather.

Experience teaches that they should not be crowded in their sleeping quarters, nor should too many be permitted to sleep together during the cold winter season.

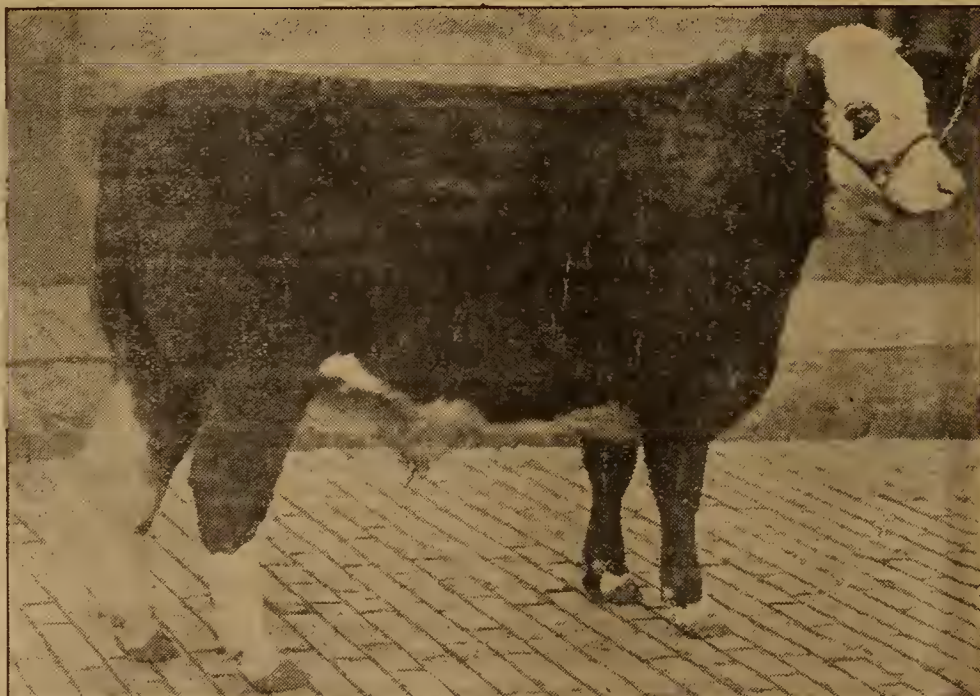
The hog can sell the farmers' corn, grain, and grass through his stomach at a better price than any other animal on the farm. This makes the pig a desirable farm animal, not only because of the fact that he can convert more pounds of meat out of a given quantity of feed, but because he can be marketed quicker than any other animal and as quickly as a crop of grain. They are essential to the farmer. Remember that the feeding, care, and management that you give the brood sow will determine to a very large extent the number of pigs she will raise.

Grand Champion Steer

By Clyde A. Mann

SEVEN DOLLARS a pound for the prime roasts and steaks, that was what the price of \$1,960 for California Favorite, the grand champion of the International Live Stock Show cost the Detroit packer who bought the animal for Christmas beef for the automobile millionaires. The bid was \$1.75 live weight, the weight was 1,120 pounds, and the bones, hide, and second cuts amounted to so much that the real rib roast, porterhouse steak, cost was \$7. Yet the bidding was lively, and Clay, Robinson & Company sold the animal in nine minutes at the record price. The effect was electrical in the matter of baby-beef growing, and the owner, the University of California, will have less difficulty in arousing the ranchers of that State to the profits of that kind of "crop."

The preparations made for California Favorite in Detroit included those for a parade through the streets. The animal was put on exhibition before being taken to the block. Search of the pedigree of the animal has disclosed the fact that the sire of this record-breaking steer was a Hereford, its dam a Shorthorn. The herdsman who fed him, it has been pointed out, was a loyal Aberdonian, Alex McDonald. No corn had been fed the animal—no grain but barley.



Here is California Favorite, the grand champion steer of the International Live Stock Show. This steer weighed 1,120 pounds, and sold for \$1,960, or \$1.75 a pound

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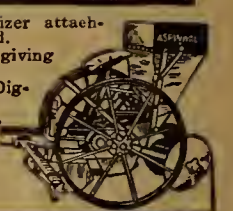
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100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk. Prevents scouring and insures the early maturity of sleek, handsome calves.

It is steam-cooked and no trouble to prepare or use.

Write for Pamphlet "How to Raise Calves Cheaply and Successfully with Little or No Milk." At dealers, or Blatchford Calf Meal Factory, Dept. 3, Waukegan, Ill.



Crops and Soils

Think Independently

By C. E. Beck

DOING things "like our folks did" was the big rut for me. Naturally when I started for myself I did as Dad had done without "there's a reason."

It so happened that my first vote was cast against Grover Cleveland. Father's folks had no use or sympathy with a Democrat. I'd been taught to think that the country must "go to the dogs" if ever a change came; that Democrats were rebels, thieves and robbers. The thing happened—and yet nothing seemed to hit us. Then I began to question the wisdom of seeing things with other's eyes. In fact, so pleased was I with Cleveland's first term that I "bolted the cradle of my youth" and voted for Cleveland on his second term. I will not say I was overjoyed at the outcome, but it was my first conquest over the follow habit.

About that time FARM AND FIRESIDE came into my life along with other high-class papers richly pungent of the soil. I began to study and change many old ideas. For example, Father never had used the winter cover crop. I tried it, and with success. He'd always allowed the manure to collect all year outside and hauled it after haying. I never allow it to gather, except under cover. I might mention scores of old ruts and wastes which I just naturally got out of after the way was once opened by that first election of Cleveland.

It proved to my young and wavering

and bottom. It needed no shoveling at all to finish it. To do the work 60 sticks of 50 per cent powder were used.

In making another ditch near Burlington, New Jersey, 2,600 feet long, the charges were three fourths of a stick per hole, the holes were 20 inches deep (exact) and about 18 inches apart. This ditch was made through a meadow swamp grown up in cedars and maples, with lots of stumps and big tight stones. Some ax work cutting roots, and a little shoveling where stumps stood, was required to straighten the ditch after blasting. One man did this finishing work in two days. The completed ditch is about three and one-half feet wide and about two feet deep.

In the Holly Shelter swamp, near Wilmington, North Carolina, a big ditch, or canal, 10 feet wide and 8 feet deep, was blasted, and another of the same depth, but 15 feet wide. In each case three rows of holes were used, the holes about 6½ feet deep and 12 to 15 inches apart. The charges were of one to two sticks per hole.

It is seen that the amount of powder required depends directly on the amount of material to be moved. The distance apart for charges is fairly constant, at 12 to 24 inches for ditches of all sizes depending on the nature of the soil and the kind of detonation to be used, while the depth at which to place the charges is about three quarters of the desired depth of the ditch.

Praise Durum Wheat

MORE good words for Durum wheat come from Canada. Tests made in the University of Saskatchewan state that the Kubanka variety of wheat yielded from eight to ten bushels more per acre than any other variety tested in that experiment station the past year. This is the same variety that made such an excellent showing at the South Dakota Experiment Station the past five or six years. This variety of Durum wheat appears to be especially well adapted for the climatic conditions of the South Dakota wheat district and of the Saskatchewan country, Canada.



Durum wheat made excellent yields in the Dakota and Saskatchewan wheat districts in 1916. Much of the wheat was threshed out of the shock

mind that I should not depend on Dad's ways or on any one man's say or methods, but should read up, test out, and be my own strategist in all farm operations. I've made, and still make, mistakes aplenty, but I can truthfully say: "My successes predominate and result from steering clear of many a rut that I was 'born heir to.'"

High-Yielding Wheat

ARE you raising the same variety of wheat you did twenty-five years ago? Are your yields in proportion to the fertility of the soil as high as the varieties grown by your neighbors? At the Ohio Experiment Station, variety tests have shown that some strains of wheat yield 40 bushels and others but 25 bushels. It is evident that on land of the same fertility some varieties are better yielders, therefore farmers can profit by securing the seed from high-yielding varieties in their neighborhood.

Making Drain Ditches

By J. R. Mattern

THE details about the amount and the time it took to blast out some ditches may prove instructive to practical readers who have ditches to make.

In one case near Nevada, Missouri, a ditch 225 feet long was made. Two men did it, and it took two hours. The ditch is about four feet wide and three feet deep, in the clear, with about six inches of loose material on the sides

Rules for Killing Smut

By C. R. Burke

FROM one fiftieth to one twentieth of the oat crop is destroyed by smut every year. The smut is on the seed and the formaldehyde treatment will kill it. Here are the condensed rules of the Iowa Experiment Station for killing smut:

1. Spread out 40 bushels of oats, five or six inches deep, on a clean floor.
2. Mix one pound of formaldehyde (40 per cent) with 40 gallons of water in a barrel, and stir well.
3. Sprinkle the oats with the formaldehyde mixture until they are saturated. A good plan is for one man to shovel the oats into a pile while another sprinkles the mixture over them. They are not exposed to the air for so long a time and less gas is lost. Be sure the pile is well soaked.
4. Cover pile with blankets or sacks to keep the gas in.
5. Leave the pile covered overnight, then remove the coverings and shovel oats out thin to dry. Shovel them over from time to time. The oats may be sown as soon as dry enough to run through the drill, but make allowance for the swollen condition of the seed when setting the drill. It is a good plan to treat the oats late in the afternoon. Then they can be left overnight without danger of heating.

If you have more seed than you need, you can safely feed the surplus after all the gas has escaped. This takes about two days.

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What Should an Engine Weigh?

Abraham Lincoln was asked how long a man's legs should be and he replied, "they should be long enough to reach the ground—and no longer." An engine should weigh enough to do its work—and no more. Years ago it was necessary to cast engine parts very large and heavy, with heavy base and flywheel, or the violent explosions and fast and slow speeds of the old-style engine would tear it to pieces.

Eight years ago the Cushman Motor Works designed a new type of farm engine weighing about one-fifth as much per H. P. as other farm engines, but so well built, balanced and governed that it ran more steadily and quietly than a farm engine was ever known to run. Some people laughed, and said that a 4 H. P. engine weighing only 190 lbs. must be a toy, but when they saw the Cushman at work beside heavy engines weighing five or six times as much, they realized that weight does not mean power, and that the Cushman is a giant in power for its size.

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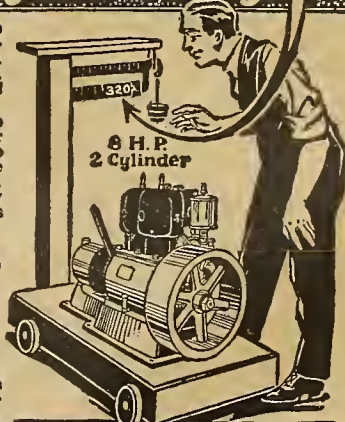
Cushman Engines have Throttle Governor and Schebler Carburetor, insuring regular speed even on jobs of irregular loads, like sawing.

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The Cushman is not a cheap engine, but it is cheap in the long run. Ask for free Light Weight Engine Book.

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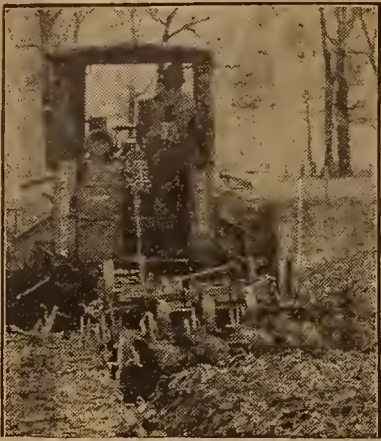


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Oliver tractor plows equipped with the combined rolling coulters and jointer will enable you to do more and better plowing. Your plowing will be done on time when the soil is in the best condition.

The bottoms of Oliver tractor plows raise or lower in a short space of travel insuring full depth work at the ends of the field. They can be set to work at the proper depth, deep or shallow, and do even plowing at the desired depth. The combined rolling coulters and jointer turns all weeds and trash on the bottom of the furrow, providing a compact seed bed and a clean field surface.

To avoid delay and possible failure in delivery, orders should be placed at an early date. We will be glad to give you any information desired.

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Write today for special offer and free booklet on Land Clearing.

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San Francisco
California

Title Contest Awards Winners in Christmas Cover Competition

THE contest announcement asking for titles to the December 16th cover picture enlisted an army of 16,137 contestants who submitted a total of more than 100,000 titles. Among those who matched their ingenuity and imagination against the \$175 of prize money were farmers, housewives, preachers, lawyers, school teachers, public officials, mechanics, and persons in many other walks of life. But the vast majority were the rural-route population, who won 44 of the 47 prizes. The judges wish to acknowledge the receipt of several excellent drawings in reproduction of the original picture, but as no provision was made for prize drawings, they were not eligible to the awards. Twelve contestants each submitted 47 titles, but the most of the successful letters were those containing a few well-considered thoughtful titles.

Every depth of human emotion received its share of conjecture. "A Childless Home" was one of the most common titles submitted. "Santa's Dilemma," "Under the Mistletoe," "Watchful Waiting," "Old, Old Story," and "Night Before Christmas" were other favorites. There were hints of added work for Santa Claus in subsequent years. One somewhat pessimistic contestant submitted the title "The Curse of To-Day."

In selecting the 47 prize-winning titles, the judges based their decision, first, on the application of the title to the picture; second, on the originality of the idea and expression; and, third, on brevity. Some excellent essays and long poems were received, but were not eligible as titles. The list of awards is as follows:

- First prize: What's time to a lover?—T. J. Tugman, Sr., Sands, N. C.
Second: Conflicting engagements.—Jessie L. Van Osdel, Grenada, Miss.
Third: Santa forgot it was Sunday night.—Maggie Smith, New Haven, Ky.
Fourth: Never too old to yearn.—Charles F. Platts, Rindge, N. H.
Fifth: He's offering her his farm and fireside for life.—C. R. Graves, Clarion, Ia.
Sixth: Benevolent neutrality.—I. M. Charlton, Morrisville, N. Y.
Seventh: The question before the house.—Lloyd Gough, Memphis, Tenn.
Eighth: A "Hearty" Christmas.—Ruth M. Nelson, Marion, N. D.
Ninth: "I thought this was my night."—Mary C. Thompson, Pittsburgh, Pa.
Tenth: Christmas window decorations.—E. E. Haskins, Republic, Kan.
Eleventh: Cupid rushes in where Santa fears to tread.—Essie Pierce, Turkey, Ark.
Twelfth: A hold-up, inside and out.—W. W. Whittier, Aztec, N. M.

The following received prizes of \$2 each:

- If Santa should sneeze!—John Pragar, Cincinnati, O.
Two missions of love on Christmas Eve.—Charles W. Money, Berea, O.
Santa doing the Hesitation.—Mrs. C. T. Levin, Heilwood, Pa.
Two hearts on which there is no ice.—Lloyd H. Halsey, Kingston, Okla.

My gifts make hearts of millions glow With joys that more than earthly seem. But what can even I bestow To add one thrill to "Love's Young Dream?"
—Thos. V. Moffitt, Nauvoo, Ill.

With Cupid within and Santa without, Their Christmas is merry without a doubt; And Cupid, not he, old Santa can tell, Has helped to "ring" this Christmas belle.
—Lyman Rupp, Ann Arbor, Mich.

- A dear Christmas gift.—Mrs. Grover Sphar, Tower Hill, Ill.
Holly and tulips.—Mrs. H. T. Hicks, Paris, Tex.
Speculations on Futures.—G. C. McNeice, Eshorn, Kan.
Great Holiday Exchange.—Ruby Johnson, Minden, Neb.

These persons received prizes of \$1 each:

- No need to pause, dear Santa Claus, A diamond ring is just the thing.
—E. H. Manning, Saginaw, Mich.

Santa dealing in futures.—Miss Clyde Cochran, Olive Branch, Miss.
Conflicting dates.—Mrs. A. M. Robinson, Metamora, O.
Forty-eight years ago.—Mr. and Mrs. L. R. Tabor, Lanesboro, Mass. [They write the following in explanation: "Forty-eight

years ago, come the twenty-fourth of this month, a scene similar to that depicted through the window in your picture was enacted in the home of my wife; the actors, the writer and his life partner. At that time the question was asked and the answer given that joined our hearts and hands for all the years that have passed, and the recurrence of that evening always bring to us memories of the happy hour.]

Loving by moonlight,
O blessed condition!
Seated together
In blessed position.
Yet love-making
Might have come to a pause
If they only had known
They were watched by old 'Claus.
—Ila Avis, Adrian, Mich.

Behold our dear old Santa Claus! Forgotten are the toys Which he has carefully prepared for happy girls and boys.

Old memories are all "stirred up" because of just a "spoon."

He's thinking of his youthful days, a girlie, and the moon.
—Mrs. C. E. Noyes, Concord, N. H.

"Ho, Ho!" cried Santa with twinkling eyes,
"That fellow there is somewhat wise.
No need of candy, apples, tart,—
He's begging her for a Christmas heart."
—Emma L. Gillette, Grand, Okla.

Their Christmas gift, what shall it be?
At first you'd think 'twas hard to see.
'Tis Santa though that puzzled is,
For he is hers, and she is his.—C. B. McIlvain, Zionsville, Ind.

Getting their heads together.—G. E. Patterson, East Bloomfield, N. Y.
So close to a warm spot and yet so bitterly cold.—Alice Andersen, Superior, Neb.
The outward sign of the inward spirit.—James A. Rickards, Ocean View, Del.

Forgotten for once.—J. C. Tevis, Woodbury Heights, N. J.
Somewhat delayed, but well repaid.—C. E. Freeman, Kirkland, Wash.
Where hearts are given, man-made gifts are forgotten.—J. C. Robins, Nashville, Tenn.

Santa looking at Christmas spoons.—Mrs. N. Howell, Deputy, Ind.
More welcome gift than love's young dream have I none.—Mrs. Hale Acers, Cincinnati, N. Y.
A Marry Kissedmiss.—Wayne Pifer, Sullivan, Ill.

Unconscious entertainers.—Mrs. Clarence I. Goodemote, Broadalbin, N. Y.
His advance agent.—Mrs. F. R. Holt, Osage, Okla.

"There I've forgotten that cookbook!"—Sheffield H. Clarke, New Britain, Conn.
Sour grapes.—W. B. Paul, Antioch, Tenn.
Wistful waiting.—Mrs. M. B. Wright, McPherson, Kan.

Delayed by court.—Belle W. Schwin, Middlebury, Ind.
Love bars the way.—Mrs. Philip S. Porter, Williamsburg, Mass.
Two shadows that will soon be one.—Ernest Johnson, Clark, S. D.

How We Planned and Built Our New Home

[CONTINUED FROM PAGE 3]

mutilated every time the house is painted by careless workmen.

We were quite a long time in deciding just how to give the house the best outside appearance at reasonable cost, but finally thought that lap-siding over the lower half, with shingles above, would look well. Both of these were laid over tongued and grooved sheathing, with heavy building paper between. For heating we installed a hot-air furnace. An acetylene gas plant furnishes light in every room and hallway.

The general contract included excavation, concrete foundation, cement floor for cellar, a 100-barrel cistern, lumber, millwork, plastering, painting, chimneys, and guttering. This is what the house cost:

General contract (including items above mentioned)	\$2,660
Plumbing	230
Furnace	125
Lighting plant and fixtures	355
Mantels	110
Hardware trimmings	40

Total \$3,570

This house was built four years ago, and I am told the cost of material and labor has increased somewhat since then.

Before Drinking Coffee, You Should Consider Whether Or Not It Is Harmful

"There's a Reason" for POSTUM

NO MORE WORK SHOE TROUBLES

The new patented National Aluminum Shoes stop all pinching, distorting or rubbing of feet. GUARANTEED to protect your health and save money by outwearing several pairs of kind you now use. Water-proof, rest-proof, break-proof, light, comfortable, fits fine, easy to walk in. Keep your feet warm and dry. Easy to clean. Snow or mud does not ball up and stick to sole. Cushion felt insole. Best pliable leather uppers. Sizes 1 to 13. 6 to 16 in. high. Wear them anywhere, anytime. Special transmission Rubber Taps outwear any other kind—easy to renew if they ever wear out. FIT AND SATISFACTION GUARANTEED or MONEY BACK. Postals bring OUR FREE catalog.

National Aluminum Shoe Co. try on in Dept. 51. Racine, Wis. your own home

BOYS! GIRLS!

You can have one or more of these articles for securing two or more subscriptions to FARM AND FIRESIDE at 50c each. Read the offers.



This Electric Flash Light for TWO Subscriptions

Here is a handy little light that will please any boy, girl, or grown-up. Case is nickel-plated. Has high-grade tungsten bulb. Battery with light will last for a long time and can be replaced at any electrical store. Sent for Two subscriptions at 50 cents each.



This Dandy Watch for THREE Subscriptions

This watch is guaranteed to keep time, and to be satisfactory in every way. It is 16 size, with polished nickel case, white dial, second hand, stem wind and set. Sent free for Three subscriptions at 50 cents each.



A Splendid Pencil Outfit for TWO Subscriptions

A nifty outfit packed in a folding box with snap flap. Contains four high-grade pencils, one pen and holder, and red rubber eraser. Will delight any boy or girl. Sent for Two subscriptions at 50 cents each.

Go out and see your friends, get them to order FARM AND FIRESIDE for a year at 50 cents. Send us the names and mention gift you want.

FARM AND FIRESIDE, Springfield, O.

IRON AGE

Farm, Garden and Orchard Tools

Answer the farmers' big questions. How can I grow crops with less expense? How can I save in planting potatoes? How make high priced seed go farthest? The **IRON AGE Potato Planter** solves the labor problem and makes the best use of high priced seed. Means \$5 to \$50 extra profit per acre. Every seed piece in its place and only one. Saves 1 to 2 bushels seed per acre. Uniform depth; even spacing. We make a full line of potato machinery. Send for booklet today.

No Misses
No Doubles

Bateman Mfg Co., Box 38-B, Grenloch, N. J.

\$1 FOR EVERY BOY under 18 who persuades a member of his family or a neighbor to buy one of our **Field Force Pump** or **Power Sprayers** direct or from our dealer. Write for details.

FIELD FORCE PUMP CO., Boy Dept. Elmira, N. Y.

Write today for a pair of **Wanted Everbearing Strawberry plants**, one large packet each of the new **Coral Fanta**, **Sudan Grass** and **Silk Leaf Poppy** seed, all free for testing. Send 10 cents for mailing expense, or 25c as you please. We offer genuine **Progressive Everbearing plants** at 50c per dozen; 90c for 50; \$1.75 for 100; \$5.00 for 250, all postpaid. **CATALOGUE FREE.**

The Gardner Nursery Co., Box 403 Osgo, Iowa

WHITE SWEET \$3.90

CLOVER 3 Per Bu.

BIGGEST MONEY-MAKER KNOWN—INVESTIGATE. The greatest forage plant that grows. Superior to all as a fertilizer. Equal to Alfalfa for hay. Excels for pasture. Builds up worn-out soil quickly and produces immense crops, worth from \$50 to \$125 per acre. Easy to start, grows everywhere, on all soils. Write today for our Big 100-page free catalog and circular about unhulled and scarified hulled sweet clover. We can save you money on best tested, guaranteed seed. Sample free.

A. A. BERRY SEED CO., BOX 942 CLARINDA, IOWA

LANTERN FREE

300 Candle Power

To Try In Your Own Home

Turns night into day. Gives better light than gas, electricity or 18 ordinary lanterns at one-tenth the cost. Wind proof, storm proof. Use anywhere as a Lamp. Makes light from common gasoline. No wick. Mica Chimney. Absolutely SAFE.

COSTS ONE CENT A NIGHT

We want one person in each locality to whom we can refer new customers. Take advantage of our Special FREE TRIAL OFFER. Write today. AGENTS WANTED.

SUNSHINE SAFETY LAMP CO.
658 Factory Bldg., Kansas City, Mo.

SPRAY

Whether it's a flower bed, a truck garden or an orchard, spray it and watch results improve. Take this

DEMING

Perfect Success Bucket Sprayer

Catalog Free for instance. It's as scientifically built as a Deming Power Rig and the cost is so slight it pays for itself many times in one season. Want to know the cost? Write

THE DEMING CO.
239 Depot St., Salem, Ohio
1000 Types of hand and power pumps for all farm uses

Need a silo filler?

—read up now on the

Blizzard

Ensilage Cutter

WRITE for free booklets. Find out how little power is needed—how high Blizzard elevates. Cuts evenly. Big capacity. Sturdy and durable.

The Jos. Dick Mfg. Co.
Box 28, Canton, Ohio

Maloney's Fruit and Ornamental TREES

have given satisfaction for 33 years. This year they are better than ever—every tree covered by an absolute guarantee. All the Fruit, Nut, Ornamental Trees, Vines and Shrubs grown in our 400-acre Nurseries, the largest in New York, are sold direct at cost plus one profit. Send for free, wholesale catalogue, illustrated in colors, today. Maloney Quality plus Maloney Service means money in your pocket. Folder on "Care of Trees and Shrubs" Free.

MALONEY BROS. & WELLS CO.
54 East St., Danville, N. Y.
Danville's Pioneer Wholesale Nurseries.

SHRUBS, ROSES AND VINES
Catalog with colored illustrations FREE

Make Money All Winter

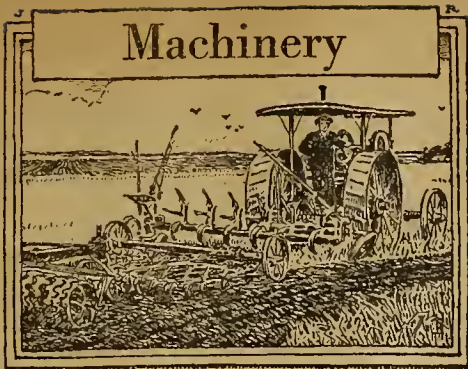
Pull out stumps and get all the virgin land at work making money for you. It's the best land you have. Work can be done in Winter and early Spring. Stumps pulled at 3c to 5c each. An acre or more a day.

Hercules

Triple Power Stump Puller

Find out all about it by sending for the big hook at once. See the proofs we offer. Get the special low price proposition we are making. Address

Hercules Mfg. Co.
970 25th St., Centerville, Ia.



Machinery

Thresher Fires

By Carlton Fisher

EXPLOSIONS and fires in threshing machines caused by grain dust have been very destructive, especially in Eastern States, where much of the threshing is done in barns. The U. S. Department of Agriculture has had a corps of experts working on this problem for several years and now announces the invention of an automatic fire extinguisher which has been fully tested, and found to operate satisfactorily in every case.

The device will be patented for the use of the public, and in the meantime persons interested may secure working drawings on application to the Office of Public Roads and Rural Engineering, Department of Agriculture, Washington, D. C.

Blasting Ditches

J. R. MATTERN, a dynamite expert, gives these suggestions for the economical blasting of ditches:

Ditching by blasting can be done most cheaply when the ground is wet, but not wet enough for the banks to close in.

Have the charges shallow enough so they will not send their gases to useless depths in the subsoil.

Ditches may be blasted in dry soil, even in dry sand, but except in very urgent work it is best to wait for a wet season, when the cost will be less.

The most economical and satisfactory soils in which to blast ditches are the lighter clays or heavy loams. When the ground is moist the results are surprisingly good.

Concrete Work in Winter

"IS IT possible," writes a Kansas reader, "to do concrete work out of doors in the winter time? I want to make a foundation for a hog house. How much is concrete injured by freezing?"

Concrete may be made in winter as well as at any other time of the year if a few precautions are taken. Cold weather retards the hardening of the concrete, but if freezing is prevented for a period of forty-eight hours, and if the work is kept covered for five days after that, subsequent freezing will seldom do any injury. To determine whether a piece of newly laid concrete has set or has simply frozen, pour boiling water on it. If frozen it will become soft, but if thoroughly set it will remain hard.

The chief precautions to observe in making concrete out of doors in cold weather are these: Use no frozen gravel or sand. To warm it, first lay a piece of stovepipe of suitable length on the ground, build a fire inside, and shovel the sand and gravel on top of the hot pipe and around it.

You can also prevent freezing at temperatures no lower than 22 degrees F. by adding three quarters of a pound of salt for each gallon of water. For temperatures just a few degrees below freezing, use less salt. But in no case should the salt solution be stronger than 10 per cent. Salt used in solutions of 10 per cent or less delays the harden-

ing somewhat, but does not noticeably weaken the concrete.

The most practical method, however, and one which involves little expense, is to heat the water as well as the sand and gravel to at least 100 degrees F., mix the concrete as quickly as possible, and cover the work with building paper, straw, and manure as soon as finished. During the hardening process, concrete generates internal heat, and large blocks of concrete or thick walls seldom freeze when protected as described. Warm the forms before filling by pouring hot water on them. This is especially important when metal forms are used. A good plan when conditions permit is to keep the materials in a heated shed, mix them there, and then use a wheelbarrow to carry the wet mixture to the forms. Many concrete products such as posts, blocks, and slabs may be made indoors as a means of profitably using spare time during the winter.

Sweep Grinder Profitable

By D. F. Armsmeier

I HAVE noticed with interest the accounts of readers who have told of their best investments. The purchase which has brought me best returns was a two-horse sweep grinder. I grind feed for my own stock and in winter grind a considerable amount for my neighbors.

For grinding the common grains I charge nine cents a hundredweight, or \$1.80 a ton. One neighbor who owed me \$4.50 was unable to pay it in cash, but offered a poor little calf for the amount due. The calf was just weaned, and in order to settle with him I accepted it. After keeping the calf for twenty months I was offered \$90 for it. That was my best investment.

Useful Nail Kinks

By Calvin Fraser

BEFORE driving nails into thin boards, fine furniture, or anything that is likely to split or cause the nail to bend, first drive the nail into a bar of soap. The nail will then enter the wood more easily.

Before trying to pull an old nail out of a board or timber, drive it in a fraction of an inch. It will loosen the rust around the nail and you will be less likely to pull the head off. To pull big spikes, first pour a few drops of kerosene oil around the base and let it soak in. The spike will then usually come out with ease.

Overloaded Wagons

By B. D. Stockwell

MOST wagons have a certain rated capacity, and loads heavier than that are likely to shorten its life. While few intelligent men will expect a two-horse team to pull a four-horse load, it is quite a common practice to disregard the rated capacity of a farm wagon or truck and pile on all that will stay.

The chief effect of overloading is to crystallize the metal, which weakens it and makes it less dependable. A wagon that is constantly overloaded may last for years, and even exceed the expectation of the owner, who is congratulating himself on getting a two-ton wagon for the price of one rated at one-ton capacity.

On the other hand, it may break down most any time. High-grade wagons will stand a greater amount of overloading and for longer periods of time than a cheap wagon of the same rated capacity, but overloading is in final results an expensive practice. Make two loads rather than run the chances of permanently injuring a good wagon. The same principle applies to gas engines, motor trucks, automobiles, and other heavy-duty or high-speed machinery.



A case of overloading. This wagon rated at 6,000 pounds' capacity is here carrying a load of potatoes weighing 18,100 pounds, or more than nine tons

Starts Your Motor on the FIRST Turn!



No Matter How Cold the Weather

Think what a big advantage it is to you, in these days of low-grade gasoline, to be able to let your car stand for hours in the cold with the full assurance that it will *always* start on the first turn-over.

That is just what we guarantee the Imperial Primer to do on any car in the coldest weather. Drivers of old cars use the Imperial Primer the year 'round to insure quick starting. It is a necessity—not an accessory.

This little device is located on the dash of the car and sucks up gasoline from the main line and then sprays it into the manifold near the motor in the form of a fireable mixture which absolutely insures easy cold weather starting.

Imperial Primer

Sprays Vaporized, Fireable Gasoline Into the Manifold



This outfit consists of a small, substantially-made plunger pump, all necessary bolts, connections and tubing furnished, ready to mount on the dashboard of any car, any model. All connections made by the well-known Imperial Compression Couplings. No soldering, flaring or threading required except in the manifold.



Anyone at all "handy" with tools can install the Imperial Primer on his car in an hour's time. Simple but complete directions for installation and operation accompany each outfit.



Forget the old, "mussy," uncertain, time-killing way of trying to get your motor to start. Quit coaxing it with raw, lifeless gasoline. The Imperial Primer puts fireable mixture right at the firing points. Saves batteries—saves your self-starter.

10 Days' Free Trial—Ask Your Garage Man—Write for Free Booklet!

In case your garage man can't supply you, write direct to us. When ordering be sure to give diameter of main gas line tubing. You need an Imperial Primer. Try it! Used by thousands of satisfied motorists. On market 3 years. Never fails.

Imperial Brass Mfg. Co.
1213 W. Harrison St., Chicago

\$5

For Complete Outfit

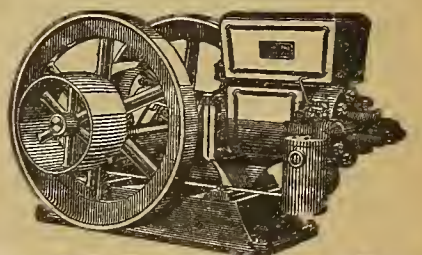
Paint Without Oil

Remarkable Discovery That Cuts Down the Cost of Paint Seventy-Five Per Cent.

A Free Trial Package is Mailed to Everyone Who Writes.

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it **Powderpaint**. It comes in the form of a dry powder and all that is required is cold water to make a paint weather proof, fire proof, sanitary and durable for outside or inside painting. It is the cement principle applied to paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 76 North Street, Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write to-day.



OTTAWA ENGINES

Kerosene Oil, Gasoline and Gas

Let me send you an engine to earn its own cost while you use it—for my Kerosene engine gives more power from a gallon of 6-cent kerosene than you can get from a gallon of 20 or 25-cent gasoline in any gasoline engine. Easy to start; easy to operate; no cranking; no batteries.

You Don't Have to Pay War Prices!

2 H-P, \$33.95 5 H-P, \$74.95 12 H-P, \$191.50
3 H-P, 51.50 7 H-P, 101.50 16 H-P, 265.50
4 H-P, 69.75 10 H-P, 144.50 22 H-P, 369.90

Other sizes—Portable and Saw-Rigs at proportionally low prices. All F. O. B. Factory.

DIRECT FROM MY BIG FACTORY

For longer than any other engine manufacturer in America, I have been selling engines direct from the factory to the man in the shop or on the farm. Now, as before, any honest man can have my engine on

90 DAYS' TRIAL

Every engine I send out must make good all I guarantee. No need to pay double my price for any good engine, or take an out-of-date engine for any kind of a price. Let me show you how to figure what an engine is worth and

How to Know Better Engines

My newest book helps you choose a safe and value-received engine—how to make simple tests—and all about valve in head motor. Send me your address today. Just a postal card will bring this newest and latest book.

Geo. E. Long, OTTAWA MFG. CO.
1157 King St. Ottawa, Kansas.

Baiting the Buyer

By J. H. McKenney

WHEN making plans for the marketing of farm produce, there is a tendency to overload profitable trade near at home while considering the chance to secure distant buyers. For example, an active truck gardener or fruit grower can often dispose of his crop at good prices right in his own neighborhood where general farming is the main interest. In other sections the influx of summer residents, boarders, and tourists afford an excellent if limited local trade, and on good highways I find passing motorists often stop to inquire for eggs, chickens, and similar delicacies. If statistics could be obtained showing the amount of business done in this way, many a farmer would be favorably impressed and consider the home trade worth going after in some systematic way.

Last fall I had a large crop of turnips that had been grown between the rows of trees in a young orchard. The root house had a capacity of 1,000 bushels, but when that was filled there still remained several hundred bushels for which there was no storage room. After considering the matter for some time, I decided to erect a bulletin board at the road gate. On this I briefly stated that I had a quantity of turnips for sale at 40 cents a bushel. The potato crop in this section was almost a total failure, and the selling price was around \$1.25 a bushel. Practically everybody in

TRY the plan of having the boys and girls take charge of one or more fruit trees and let them have the returns from these trees for their own spending money. Give them your own experience, also have them get bulletins on pruning and caring for fruit. FARM AND FIRE-SIDE will be glad to furnish information on the subject also.

Berries, Bees, and Turkeys

By Harriet McCoy

I KNOW of no better way for a girl to make some spending money than to raise some strawberries and turkeys and to keep a few stands of bees. In my case I wanted to secure health improvement as well as some ready money.

Last year I set 400 strawberry plants in rows $3\frac{1}{2}$ feet apart, the plants 18 inches apart in the rows. The rows were 60 feet long. I kept all blossoms picked off last fall, which insured well-developed plants for this year's fruiting. Last spring I sold 100 quarts of fine berries at 10 cents a quart, and had plenty besides for home use, fresh and for canning.

After the berries were picked I had the patch cultivated thoroughly with horse and plow, and at that time thinned out 2,000 plants which I sold for \$2, making a total of \$12 from my strawberry venture for the year. Besides, I set 1,000 more plants for my own use. Next spring I want to ship some berries, besides supplying local customers.

Late in the fall I mulch the plants with straw, and in the spring uncover the crowns of the plants but leave the straw between the rows. The varieties I am growing are Gandy and Aroma.

I made my start with turkeys last year with two settings of eggs hatched under chicken hens. Only three eggs failed to hatch out of the two settings. Of the 15 poults hatched, I raised all to maturity except two, which were drowned. Seven of the turkeys I sold during the holidays at \$2 apiece to local customers. The other six I kept for breeders.

Notwithstanding the rainy cold weather last season, the turkeys did well. Out of 21 of the first hatch I lost but one.

I made my start with bees by hiving a stray swarm which settled near the house two years ago. I now have four stands of bees, and last year secured about 40 pounds of fine honey from the young swarms, leaving them sufficient to winter on. When working with the bees my sister helps by using the smoker while I do the work.

From this combination of bees, turkeys, and berries I hope to make a nice little income.

Now that the season of heavy snows is here, the danger from rabbits, mice, and other winter tree enemies increases. If means of protecting the trees have not already been prepared, lose no time in doing this work and thereby prevent danger of much loss.

A Long-Lived Crop

By A. G. Settle

A GOOD stand of asparagus will stand a lot of abuse and then "come back" and furnish a good profit under right care. I had some experience with an old bed of asparagus which had been set about twenty years, and for half of that period had received absolutely no attention.

My first move was to furrow out the old bed nearly knee-deep. Then I scattered about 50 loads of manure to the acre over it. By cutting time next year it had taken on new life and turned out a wonderfully prolific crop. Many of the stalks were from 8 to 10 inches long and as large as a man's forefinger. During the most rapid growth we had to cut the asparagus twice a day.

That which we cut in the morning was stored in baskets and sprinkled and set in a cool cellar until ready for packing the next day. The tending of the asparagus to get best results requires hard, steady work, but this crop is profitable. For the crop mentioned I received from \$1 a dozen for short stems up to \$3 a dozen for the best. Sometimes I realized as high as \$30 a day from that crop.

MAKE sure of your supply of spray material and spraying machinery before the time of its pressing need. When the fruit tree buds begin to open it is too late to begin to hurry.

WE SHOULD take our hats off to the good productive apple tree. One Georgia apple tree, seventy-eight years old, is still bearing regularly, and in 1916 bore a crop of eight barrels of marketable apples. This tree has paid the taxes on a 320-acre farm for twenty-six years.



the neighborhood, and many who were strangers to me, came to the farm to buy turnips. It seemed that each one told somebody else. In a little over two weeks not only the 400 bushels I had advertised but a good two thirds of those I had stored for winter feeding were gone. I had to call a halt and change my bulletin to "sold out."

A plain board painted black and nailed to a fence will answer the purpose. If, however, something more ornamental is wanted, I would set in the ground near the road, just at one side of the driveway, a couple of durable posts and attach to these my bulletin board, which should be about four feet long to three feet wide. A rounded top improves its appearance.

Sometimes you need seed grain, a new milch cow, or maybe another horse to help tide over a busy season. The "want" section of the bulletin board is an easy way to get those and many other things you require without running all over the country. In using the "For sale" section, write in it whatever there is to dispose of, be it little or big. It is surprising how many little things can be turned into a dollar that would otherwise be wasted.

Suppose that only ten persons pass the farm daily. That means that more than 3,600 see the board in a year. If each one of these mentions to five others some of the articles he noticed in your "For sale" section, your advertising will have secured circulation of over 20,000 in the same space of time. No matter if but one person a day sees the board, no farm equipment is complete without it, because advertising is the life of business. The merchant who did not employ it would be considered a back number. The same principle in a more or less modified form applies to the farmer.

Then, too, displaying the name of the farm helps to individualize both farm and farmer in the minds of the passers-by. It gives the impression that the owner takes pride in his surroundings. The possible customer naturally infers that this pride is transferred to articles for sale. The farmer is easily brought face to face with buyer or seller, who, noting his methods, are assured that they have a real man of business to deal with.

For the Land's Sake — Use Bowker's Fertilizers

Good Potatoes and Plenty of them

BOWKER'S FERTILIZERS certainly have made good on potatoes. Those who use them reap a harvest in quantity, quality and price. These fertilizers made their original great record on potatoes nearly forty years ago,—and the record has been well sustained ever since.

Remember C. B. Coy's big crop of 738½ bushels per acre on our Stockbridge exclusively?

Send for our new illustrated catalogue for 1917 and see how well our customers have succeeded with Bowker goods the past season.

Ask for local agent's name or for an agency for yourself.

Send for our book "How to Get a Crop of Potatoes"

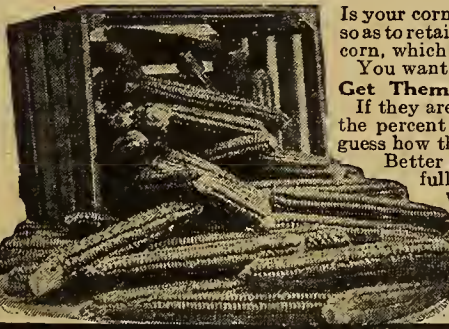
BOWKER FERTILIZER CO.

Boston, New York, Buffalo, Philadelphia, Baltimore

SUBSIDIARY OF THE AMERICAN AGRICULTURAL CHEMICAL COMPANY

22

Are You Sure of Your Seed Corn?



Is your corn properly bred to produce big yields, and properly cured so as to retain all its vitality and vigor? If not, better get Harris' seed corn, which is carefully bred and cured in the most effective manner. You want the best seeds for the garden also.

Get Them Direct from the Growers at Wholesale Prices

If they are Harris' seeds they are good. Every lot is tested and the percent that grow is marked on the label. You do not have to guess how thick to sow them.

Better get our new catalogue full of good things. A card will bring it. Send today.

Joseph Harris
Company
Box 53
Coldwater, N. Y.

Harris Seeds
Label on every lot
Tells how many

will grow
According to our tests
98 per cent
of this seed germinates

EVERYTHING for the GARDEN

is the title of our 1917 catalogue—the most beautiful and complete horticultural publication of the year—really a book of 208 pages, 32 colored plates and over 1000 photo engravings, showing actual results without exaggeration. It is a mine of information of everything in Gardening, either for pleasure or profit, and embodies the results of over seventy years of practical experience. To give this catalogue the largest possible distribution we make the following unusual offer:

Every Empty Envelope Counts as Cash

To every one who will state where this advertisement was seen and who encloses Ten Cents we will mail the catalogue

And Also Send Free of Charge

Our Famous "HENDERSON" COLLECTION OF SEEDS

containing one packet each of Ponderosa Tomato, Big Boston Lettuce, White Tipped Scarlet Radish, Henderson's Invincible Asters, Mammoth Butterfly Fansties and Giant Waved Spencer Sweet Peas, in a coupon envelope, which, when emptied and returned, will be accepted as a 25-cent cash payment on any order amounting to \$1.00 and upward. With the Henderson Collection will be sent complete and detailed cultural directions.

PETER HENDERSON & CO. 35 & 37
CORTLANDT ST.
NEW YORK CITY

Green's Trees

Northern Grown at Rochester

Green's Trees are hardy, prolific and absolutely true to name. We sell direct to YOU; there is no agent to pay. For more than 35 years we have been pleasing farmers and orchardists with our stock and prices.

Buy Direct at Half Agents' Prices

We have anything you want in a selected list of good stock. Apple, Peach, Pear, Plum, Quince and Cherry Trees. Currants, Ornamental Trees, Roses, Plants, Best New Fruits. You can't go wrong when you buy Green's Trees because you get unequalled value.

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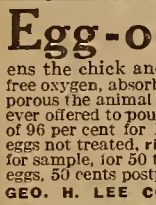
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150 EGG INCUBATOR CHICK BROODER

Both are made of Calif. Redwood. Incubator is covered with asbestos and galvanized iron; has triple walls, copper tank, nursery, egg tester, thermometer, ready to use. 30 DAYS' TRIAL—money back if not O.K. Write for FREE Catalog Now.

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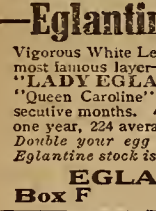


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Poultry Raising

Speeding Up for Eggs

By B. F. Kaupp

THREE things are necessary to produce a profitable number of eggs in any flock, no matter what the breeding. These are exercise, green feed, and animal feed of some sort.

I have secured best results from scratch feed composed of corn, wheat, and oats, equal parts—about one pint for each 12 hens, morning and night, fed in deep litter. For a grain mash I use wheat middlings, 25 pounds; wheat bran, 25 pounds; ground oats, 20 pounds; corn meal, 20 pounds; and meat scrap, 10 pounds. This dry mash is fed from a dry-mash hopper.

When pullets are early hatched, properly housed, and are being fed a mash such as I am recommending and poor results follow, try giving them a hot mash just about sundown. Chop up fine green feed, such as turnips, mangels, turnip tops, young oats, wheat or rye from the field, or cabbage or collards, and mix this with the above dry-mash mixture, then pour on boiling water or, if you have it, boiling butter-milk or sour skim milk, and thoroughly mix the mass. Make it crumbly moist, not too wet, and feed just enough so that they will clean it up in about twenty minutes. This will take about one ounce of dry mash to each bird, a bucket of fine chopped green feed for each 200 birds, and nearly a bucket of boiling liquid. Give this mash as hot as the bird can safely eat it. Test the mash with your fingers; it should not be hot enough to burn the mouths of the hens and yet hot enough to warm them up thoroughly. This plan must be carried out diligently each evening, as to obtain the best results it is necessary to care for the birds "like clockwork."

I have recently tried out this feeding plan on six flocks of pullets. One flock producing one to two per cent of eggs increased to 10 per cent in ten days, and in another ten days they were laying 20 per cent, and this rate should be steadily increased as the weeks go on toward spring. Another lot increased to 30 per cent egg production in three weeks.

Wanted—A Better Egg Crate

By Vincent Lee

OUR eggs mostly go to the New York market, and every time the returns come back we have a shortage due to broken eggs. At least, the commission men so report. We have to take their word for it, and "pocket the loss." We all know that the handling of egg carriers between the farm and the middleman is far from gentle. I have before now watched railroad hands throw egg crates about and wondered how a single egg could get to market whole.

There is need for a carrier for eggs that will stand the racket better than the flimsy things we have to use now, and which will at the same time not be too heavy, for freight and express

charges cut deep holes in our profits in the course of a year. Not long ago I was told of a small carrier which, it was claimed, could be dropped from the top of a four-story building and not break an egg. I would like to see a test made, but even if it worked, few of us expect to drop eggs from the top of the house. We are concerned in getting our eggs to market whole. And we must ship in larger numbers than little cartons will contain.

Here is a chance for some ingenious man. Let him set his wits to work and give us an egg crate which is practical and which will stand the test of shipping, not for a few days, but for a long period of time. We could afford to pay a good price for such a carrier, so that there ought to be some money in the invention for the man who invents it.

Lay in Winter, Then Loaf

By T. S. Crabb

I WANT to see if my experience with pure-bred Dottes and Reds agrees with others keeping these breeds. A small pen of Rhode Island Reds, the first we have owned, hatched in May, 1915. The pullets began laying in November. They kept up their laying well until spring, but they proved to be insistent sitters as soon as warm weather arrived. A pen of four Rhode Island Red breeding hens laid 201 eggs in March and April.

My Wyandottes are a mixed strain of pure-bred stock. They began laying nearly a month younger than the Reds, and I can count on the cross-bred stock laying at five months and Reds at six months old with my system of generous feeding from the shell to maturity. My entire flock of about 40 pullets averaged 20 eggs each in January, the same in February, 22 in March, 24 in April, 23 in May, and only 13 in June, which gives a 20-egg average for the half-year. This production was satisfactory and profitable until their loafing season arrived, but I should like a lot of 25-cent summer eggs as well.

Cutting Cost of Housing

By B. F. W. Thorpe

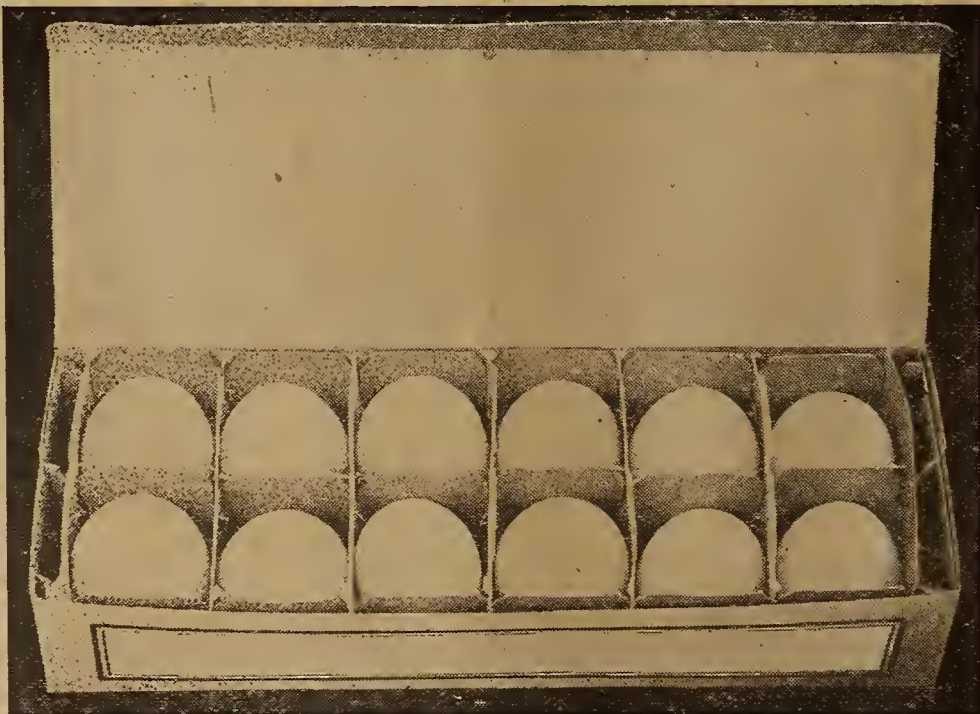
IN KEEPING with the advance in cost of housing material and price of labor, there is now an active interest in planning to lower the expense of housing poultry. The tendency in building with this end in view is to make the houses square, or nearly so, thus giving greater floor space for an equal cost of siding and roofing material.

For example, a house 20 feet square furnishes as much floor space as a house 10 feet wide by 40 feet long. With open-front construction, the square house allows the placing of the roosts farther from the drafts and storms which may make the narrow house dangerous at times.

The square type of gabled house with two glass windows above a wire-covered opening in gable end, and with glass windows on both sides, is giving good satisfaction for farm flocks, and is comparatively economical. A house of this size satisfactorily houses 125 to 175 laying hens, according to breed.

Comfortable Roosts

ARE you sure that the roosts in your poultry house are comfortable for the sleeping birds? Remember that the hens have to remain on the roosts fourteen to sixteen hours in winter. When uncomfortable while sleeping there will be less eggs.



Attractive individual cardboard containers will land many a private customer. When the cover is raised, the sight of the spotless, uniform rows of fresh eggs will captivate the housewife's heart

Both Machines \$10
Freight Paid

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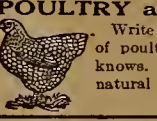
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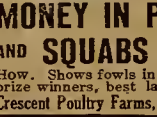
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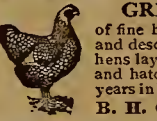
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Good-Health Talks

Suggested by Questions from Our Readers

By DAVID E. SPAHR, M. D.

J. B. D. of Georgia has had beard trouble for ten or twelve years. His beard is very thick. He shaves once a week. The next day after shaving, the portion of his face between his mouth and the point of his chin itches. The itching seems to be under the skin.

In a day or two a lot of little white pimples form on the surface. If he picks them with the point of a needle, they emit a white substance. There is some soreness with the appearance of the pimples. In two or three days the trouble dries up and by the end of the week his face seems to be well, until he shaves again.

His trouble is doubtless caused by shaving. He should bathe his face in bay rum, as an antiseptic, and shave every day with a sharp razor. He should also soften the beard well before shaving. This will lessen the irritation a great deal.

To Cure Catarrh

I have catarrh of the head and feel that my hearing is becoming affected. A friend advised the use of witch hazel in an atomizer. She says she cured herself with it. Would it benefit me? Is catarrh curable? K. F., New York.

WITCH HAZEL might benefit you, but I think listerine or the Seiler alkaline and antiseptic tablets, two tablets to three ounces of water and half ounce of glycerin, would be better. Catarrh is curable, and is often cured; but, like a cold, the next change of temperature may produce another infection.

Broken-Down Arches

My feet ache no matter what kind of shoes or slippers I wear, or if I stand on my feet a while they hurt badly. Also have a corn. Can you suggest a cure for that? Mrs. E. F., Massachusetts.

I THINK your trouble is caused by broken-down arches. Take a print of your foot on a clean cardboard, mark carefully around it, and see if the hollow of your foot does not make a print. Try a pair of proper-fitting arch supporters.

For the corn, remove the shoe pressure, and soak the corn in hot soapsuds, and trim it off carefully; or you could apply glacial acetic acid, but be very careful.

Boils

Our eighteen-months-old baby has had three boils on her hip in the last three weeks. We bathe them with iodine to scatter them. Do you advise giving blood medicines? Mrs. A. L. V., Iowa.

GIVE the baby a calcium sulphide, one-sixth grain granule every two hours for a few days. Then one three times daily for a long time.

You should be careful to poultice the boils with hot cloths wrung out of hot Epsom salts solution, two ounces to the pint, and evacuate as soon as possible after the pus has formed. Give the baby oil every day to clear the bowels.

Spinal Irritation

I have been bothered with a weakness and stiffness of my shoulders, back, and hips. F. W., Tennessee.

TAKE salol in five-grain doses every two hours, and three grains of quinine bisulphate after meals.

Gas Forms in Stomach

After eating I have such terrible belching of gas from the stomach. Also have organic heart trouble. C. M. H., Virginia.

TAKE a teaspoonful of phosphate of soda in a glass of water before meals. Drink plenty of hot water one hour before meals, and be careful of your diet.

Burning Sensation Near Liver

MRS. J. H. of Arizona says that she has had a burning distress on the right side over the liver and gall bladder for four years. The trouble has caused her to vomit from one to three times a month. The periods of vomiting last from five to twenty-five hours. She



cannot eat much and is gaggy and sick at the stomach most of the time.

She had her appendix removed last March, and now her doctor thinks the trouble is caused by gall stones, and wants to operate. At the time of vomiting her feet are very cold.

She does not mention having any severe pain or jaundice—two of the prominent symptoms of gall stones. She

should take five drops of diluted hydrochloric acid in a half-glass of water, after meals.

Rheumatism

I had rheumatism, and a friend advised me to get five cents' worth of iodide of potash and put in a glass of water and take a teaspoonful three times daily. Is this harmful in any way? Also give me a recipe for eye water made with boracic acid and camphor, to be dropped into the eye—what kind of camphor to use.

Mrs. M. McL., New Jersey.

FIVE cents' worth of iodide of potash would not be much, for the European war sent it skyward. No, it would not be harmful unless there were some peculiar susceptibility to the effects of the drug.

I suppose you refer to the following collyria: Sodii boratis, ten grains; aqua camphorate, one ounce. Two drops in the eye three times daily.

Sleepy After Meals

What is the matter with my eyes? After I eat supper and sit down quietly, my eyes close against my will and, of course, I go to sleep. I work out of doors and people tell me it is the wind. J. F., Texas.

THERE is nothing wrong with your eyes. After working in the open weather and eating a big supper, you naturally get sleepy. Eat a little less and keep busy.

To Relieve Bad Breath

I have a very bad breath all the time. Can you tell me the cause? I have no decayed teeth and I keep my teeth washed daily, so it isn't that. I have catarrh of the head and throat.

Mrs. J. G., Oregon.

YOUR bad breath comes, no doubt, jointly from your catarrh and stomach. The catarrh poisons your stomach. Use the following: Carbolic acid, 15 drops; glycerin, pure, 2 drams; aqua, q. s., 1 ounce. Mix. Use as a spray in an atomizer, or use a teaspoonful to a pint of water for a nasal douche.

Bromidrosis

I am troubled with tired, aching feet. They sweat so much they feel as if they were dipped in water scalding hot. As I must be on my feet nearly all day, I want a remedy. D. Y., Indiana.

BATHE the feet with hot water, using soap, every night. Then dust them with talcum powder medicated with formalin, ten drops to the ounce. This should bring you relief.

Apthous Stomatitis

I have been troubled for some time with what I call canker sores in my mouth. Can you give me a cure? F. M. W., Montana.

WASH your mouth every four hours with the following: Boracic acid, thirty grains; salicylic acid, five grains; water, three ounces.

Blackheads

I am bothered with blackheads and some pimples on my face. My face is greasy all the time. Also, I think I need a blood purifier. A. R., Wisconsin.

FOR your blackheads, compress them out, and apply a wash of salicylic acid, one dram, and alcohol, three ounces. Bathe in it well, and the face will become smooth, but do not use it too freely.

As a blood purifier you could use trifolium compound, one or two teaspoonfuls after meals. I have found this to be an effective blood purifier.

Breed Game Birds on Your Farm

FOR many years, we in America have spent much time bemoaning the disappearance of our feathered game. It is indeed a fact that we have little game to eat and little to shoot. But we can have an abundance of game in the fields and on the market.

The farmers of this country have the land and the enterprise to make America the greatest game producing country in the world. They can supply the ever increasing demand of American markets and American sportsmen by game farming.

To you, game farming should prove of interest for three reasons:

It is profitable from a marketing standpoint. The demand for eggs and for breeding stock is much greater than the supply, and will be for years to come. Pheasant eggs, for instance, sell today at from \$20 to \$25 a hundred. Live birds bring from \$5 to \$7 a pair.

It will, at small expense in time and trouble, supply you with an abundance of food for your own consumption. Pheasants, wild turkeys, quail, grouse, and other birds forage much of their own food, and require comparatively little attention.

It will provide more shooting for you and for everyone, for it is a fact that game raised for sporting purposes can not be confined in any restricted area. At the same time, those who own large acreage, or who pool their land with others, get profit from those who pay for sport.

Game farming can be done on a small scale, and as a side issue to regular farm work, or it is a profitable occupation in itself.

Women on the farm who are raising domestic poultry, will find it worth while to breed game birds as well.

When conducted on a large scale, a game farm produces sufficient income to be a paying business in itself.

But this subject is too big to be properly treated in this space. Every progressive farmer is sure to be interested in it. Write for the book, "Game Farming for Profit and Pleasure," which will be sent to you without cost. It tells of the subject in a most interesting and informative manner. Fill out the coupon below and a copy will be mailed you at once.

Game Breeding Department, Room 600

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Very truly yours,

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Leslie finds that plunging from society life into life in a New York boarding house is much more romantic than comfortable

The Blue Envelope

The Heroine Snubs a Good Samaritan and Repents

By SOPHIE KERR

PART III

FROM the very first second that I got there I loved New York. It's the most beautiful place! The boarding-house addresses Uncle Bob had given me were almost all near Madison Square, or on Madison Avenue, so it is there that my first vivid impressions of New York seized me. I walked twice around the square, just to enjoy it. There was the giant white Metropolitan Tower, like the Campanile of Venice, only bigger, and there was lovely Diana, "the most beautiful woman in New York," on the Garden Tower that is a replica of the Giralda in Seville; there was the Flatiron Building, coming up like a great battleship, most beautiful on rainy days, but fine enough on clear ones, and there was the old Jerome house and Doctor Parkhurst's church, with its bits of ravishing color,—but, best of all, there was Farragut! I stood in front of that statue for half an hour and went away reluctantly. Before I went I waved my hand to him and whispered up to him a message.

"You're going to be my patron saint," I told him, "and I'm going to try to behave the way you look."

Before I got through hunting a place to board I needed Admiral Farragut, and I wished he was there on a battleship.

Oh, those boarding houses with bleak and forbidding fronts, and those landladies with fronts still more bleak and forbidding! In two hours I saw more black walnut and marble furniture than I had believed existed in the whole world. If ever I have a boarding house I'll have white enamel and gay chintz in every room in the house—no plush, no dark red velvet carpet, no steel engravings, no puffy upholstery on apoplectic chairs.

How tired I did get, and I didn't take a taxi because of that pitiful little allowance I was to have! I'd look at rooms at twenty dollars a week and at fifteen dollars a week and at twelve dollars a week, and then I'd say:

"I must have something cheaper." And the landlady would look at my smart little suit and my silver fox and, oh, what a suspicious, queer sort of expression would come into her eyes! Finally I turned my foxy inside out and carried him over my arm, and I put the lace collar of my blouse under my coat and held the monogram side of my bag so it couldn't be seen.

I had got to the point where I was ready to say, "One more boarding house and I am done,"—and meant it literally—when I went to a big brownstone house on East Nineteenth Street. No good asking, I thought, but at least I'd try it. The first real human-looking landlady I had seen opened the door, a sweet little woman with an English accent and a trim well-made dark blue dress, and a little white collar and cuffs.

"But I haven't a thing," she protested when I explained.

Down I sat in a heap in one of the hall chairs.

"You must have something," I said, "and I won't go away until you tell me I may get my trunk and come back. You are so nice—I can't go away."

"There's one little room—"

"I'll take it!" I cried. Lucky for me I said so before I'd seen it. It was the littlest place, with just a bed, a bureau, a tiny table, and a chair in it, and a cretonne curtain with hooks behind for hanging up clothes. Mrs. Harris, for that was the landlady's name, said she'd give me a tripod washstand, whatever that might be, and I'd have to have my trunk outside the door. It was on the fourth floor, and the nearest bathroom was on the third. But the price—

It was only seven dollars—with board!

"I'll just write to Uncle Bob and tell him I've learned the first letter of the word economy now," I bragged to myself, but as soon as I got over my first feeling of relief to have found a place to stay that wasn't too dreadful, the blues simply fell on me and ravaged me. To think that I would have to spend the winter in a miserable little hole like this—I who had always had a big, beautiful bedroom and bath of my

own! I wanted so much to see Mrs. Alex or Uncle Bob that I thought I should die! I unpacked very slowly and took out my dear lovely things, one by one, and when I came to the photographs, I had all I could do to keep myself from throwing everything back in my trunk and rushing away. Then I gritted my teeth. "Brace up, be a sport," I told myself again.

It seemed foolish to hang my evening dresses in that little room under that cretonne curtain, so I left them in my trunk, and only took out the plainest things I had, blouses and an old serge dress, and a taffeta, and things like that, but even those few filled up my makeshift closet to overflowing—I should say to overbulging. I put my beautiful tortoise shell and gold brushes and things on the dresser and some photographs, and my leather writing case, which was

"I suppose I shall be here all winter, at least," I said. And then I added, stiffly, that I was afraid I couldn't discuss myself with strangers. How my cheeks burn as I recall that! Minnie Lacy colored and looked angry and didn't say anything more.

The next morning, after a miserable night on that little bed, I started out to look for the business school Uncle Bob had selected. I went across the Square so that I could look at my Farragut patron saint standing there looking so big and courageous, and then I swung up Fifth Avenue for a few blocks. It was so beautiful that morning, with the sky all Della Robbia blue and the air so crisp and tingling that I couldn't be utterly down-hearted. I looked at the shop windows and the people and the motors, and the first thing I knew I was humming a little tune under my breath and marching along quite briskly and exhilarated.

Presently I turned a corner and in two blocks I found myself at the door of my new "school."

Oh that long first day when I filled pages and pages with P—B . . . T—D! I worked at them so hard and they seemed to make me feel utterly hopeless. I knew then that I could never, never, never learn stenography. P—B . . . T—D! My head buzzed with them and my fingers ached from holding the pencil. By the time that first session ended I hated those four letters with the hate of a tortured, stupid soul. As fast as I set one down I forgot it. I looked about at the other members of the class—there were about twenty in all—and they didn't seem to be having the least trouble. They worked away quite cheerfully. The teacher was a large, robust middle-aged woman with big rimmed eyeglasses and a flat, nasal voice. Her name was Miss Trippe, and I think she meant to be kind but didn't know how. She looked at my work rather hopelessly and said:

"You're not very quick, are you?"—and I could only answer—that I was the slowest thing on earth.

I didn't look at the others in the class that day, only to notice that they were all very middle-class and wore tasteless clothes—not exactly loud, but just the sort of thing that shows the wearer hasn't the first idea either of line or color. They were mostly younger than I—girls of fifteen and sixteen, they seemed. Some of them were very "quick," and Miss Trippe praised them accordingly.

My moods were like balloons. I had gone into that place feeling almost at peace with the world again, in spite of the upheaval of my life, and I came out of it again so deep-dyed indigo-blue that I didn't know what to do. I walked and walked and walked for hours, without seeing a thing. At last I went back to my boarding house. I went up-stairs and threw myself on my little bed and lay there sinking down farther and farther into unhappiness. Probably I slept—anyway, when I woke up it was pitch-dark and someone was rapping at my door. I was confused for a moment—I thought I was back home again.

"Is that you, Mrs. Alex?" I called.

The door opened and someone came in.

"It's me—Minnie Lacy," said a voice. And she lit the gas. "Say, you're not sick, are you?"

She was really concerned about me, the girl I had snubbed so hatefully the day before.

"When you didn't eat lunch or dinner, I thought I'd better look you up," she went on concernedly. "Isn't there something I can do for you?"

I was hardly awake yet.

"My head aches so," I said, wearily. "You're very kind—"

She put a cool hand down on my head.

"I should think it would ache, not having anything to eat all day," she said. "Come over into my room and I'll fix you up some bouillon."

She put her arm around me and lifted me up. Then I came to myself a little more, though I still felt dazed.

[CONTINUED ON PAGE 25]



By Permission Vitagraph Film Company

Right then and there I made my first friend in New York. I begged her pardon for having been so hateful the night before, and we talked till midnight

too big for the little table. I'd hardly got these things done when I heard a big gong ring, and presently Mrs. Harris came and said it was for luncheon and she'd go down with me. That was kind of her, as busy as she was.

The dining-room was in the basement, and it wasn't very well aired. There were two long tables in the front of the room, and several small ones behind them, and it was dismal. Mrs. Harris sat me down at one of the small tables and introduced me to her mother, a white-haired, fat old lady, very English, and very h-less. There were a good many people in the room, and they all stared at me, but I didn't stare back, and they all seemed blurred and unreal. Besides Mrs. Harris' mother there was a stiff old gentleman named Mr. Bender at my table, and then a girl came in and sat down opposite me. She was dark and pretty, but frightfully common-looking. Her name was Miss Lacy. She kept staring and staring at me.

"Are you studying music?" she asked me curiously. "No," I said at once, rather coldly, for I did not like her at all.

"Are you going to stick around a while?" she went on.

What Has Gone Before

READ THIS, THEN READ THE STORY: Leslie Brennan, orphan heiress, is told by her guardian, "Uncle Bob," that her father wished her to learn a trade and earn her own living for two years unless she was engaged at the age of eighteen. At the same time she learns that Ranny Heeth, to whom she is engaged, only wants to marry her for her money. She breaks with him summarily, and goes to New York to learn stenography.



Children's Corner

The Lost and Found Medal

By John Phin

IT WAS the afternoon of a sultry Friday in June and school had closed for the week. Two young girls stood by the curb of an old-fashioned well in the country near the home of the older who had invited her young friend to spend the week-end with her.

"Oh, Mary, what a beautiful medal!" exclaimed the young visitor. Where did you get it?"

"It is a medal that belongs to my class in school," said Mary, "and the best scholar for the time being is allowed to wear it for one week. After that it is returned to the teacher and hung up until some other pupil deserves it, and then she has the privilege of wearing it. It was given to me this afternoon."

The explanation made the medal doubly interesting, so that Julia grasped it more firmly and started to examine it more closely. Just then a shout was heard coming from the outer gate. Mary involuntarily turned quickly, and in so doing jerked the medal out of Julia's hands. Unfortunately the ribbon was not very strong; it broke and the jerk carried the medal into the well, where it at once sank out of sight.

The girls were horror-stricken. Just then Mary's brother John, who had uttered the shout that caused the disaster, came up with a boy friend who was to spend the afternoon and night with him. They listened to the account of the accident and peered down into the well, but could see nothing. Although it was a bright June evening the interior of the well was pitchy dark, and even the white shining medal failed to throw up the faintest glimmer. They were in despair; the well was more than 25 feet deep and there was more than 10 feet of water in it.

After talking over various schemes for recovering the lost medal, none of which seemed very promising, they went to the house to seek the father's advice. He tried to conjure up some way of recovering the medal for them, but without success.

Sitting on the bench beside him, however, was an old man, a neighbor, who was a great favorite with all the young folks in the place, for he had helped them out of many a difficulty. Mary naturally looked toward him, and caught his eye, which seemed to have a gleam of encouragement for her in it.

"Don't be cast down, my dear child," said he; "I will get the medal for you in the morning as soon as the sun is well up."

"Oh, how will you do it, Uncle Daniel?" cried Mary eagerly.

"Very easily," he replied. "Let John go down to the lumber yard the first thing in the morning and get two strips of wood, 'adgings' they call them, 18 feet long and about two inches by one, and I will make a fishing pole that will bring up the medal."

In the morning John got the long, slender strips, and Uncle Daniel came over bringing a piece of sheet tin, out of which he made a small shovel which he fixed to the lower end of the united strips in such a way that it might rest flat on the bottom of the well and be easily slid over it so as to scoop up any desired object. The ends of the two strips had been lapped upon each other and firmly nailed together, making a rod a little more than 34 feet long.

Then Uncle Daniel took a mirror and held it so that it reflected the rays of the bright June sun straight down into the well. Although the water could not exert any magnifying power, it almost



"Oh, Mary, what a beautiful medal!"

seemed to do so, for even the smallest object was clearly visible. The medal was the first thing that caught their eyes; there it was, lying flat on the gravelly bottom, and in a few minutes Uncle Daniel's scoop placed it safely in Mary's hands.

Uncle Daniel told them that he had often used a mirror in this way; it might be used to examine the bottom of a deep well to see if it were clean.

He also told them how, in the old days of muzzle-loading guns, he had often examined the inside of his gun barrels to detect any specks of rust or dirt.

Tom, John's young friend, spoke up too, and said: "And I suppose that is the way my uncle Henry looks down people's throats and into their eyes to see what is the matter with them. He's an eye and ear and throat specialist, you know."

But Mary and Julia were so thankful to see the Good Scholarship medal safe again that they hardly heard these tales, and could only gaze rapturously at each other and the cherished medal.



The gang nearly laughed themselves sick at the professor hunting for his hat



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Latitude of Tex., Calif., Fla.	Feb. 1	Latitude of Nev., Kan., Mo.	Apr. 1
Latitude of Ariz., Okla., S. C.	Mar. 1	Latitude of Iowa, Ohio, W. Va.	Apr. 15
Latitude of Wash., Tenn., Va.	Mar. 15	Latitude of Mont., Mich., N. Y.	
		and all N. E.	May 1

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Kaiserin Augusta Victoria A rose with a hardy, vigorous constitution, growing to perfection in almost any soil. It has magnificent foliage. A continuous bloomer, of deep full double flower. It is impossible to describe its color, delicate tints of rich creamy white, lemon tinted near the center of the flower. One of the best garden roses in the world for general planting.

Sunburst No pen picture can do justice to this wonderful new everblooming rose. It is the ideal garden rose, thriving in practically any soil. The splendid flowers are produced in amazing profusion; in fact, there are few varieties to compare with it in freedom of bloom. The color is an intense orange-copper and golden-yellow, extremely brilliant in effect, and exquisitely beautiful.

Rosemary A rose as beautiful and dainty as its name. It grows sturdily and beautifully everywhere. Always producing a strong, rapid growth, and fine leathery foliage. Rosemary blooms literally all the time. In color, it is the most delightful shade of silvery pink. The flowers are double, the petals being thick and heavy, giving it somewhat the appearance of a Camellia and entirely distinct from any other variety.

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Order as Collection D

Six Exquisite Chrysanthemums

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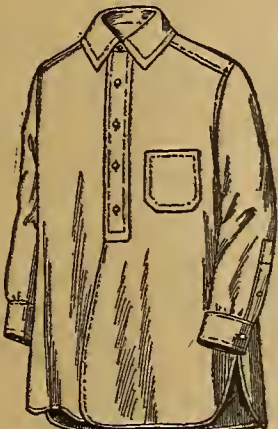
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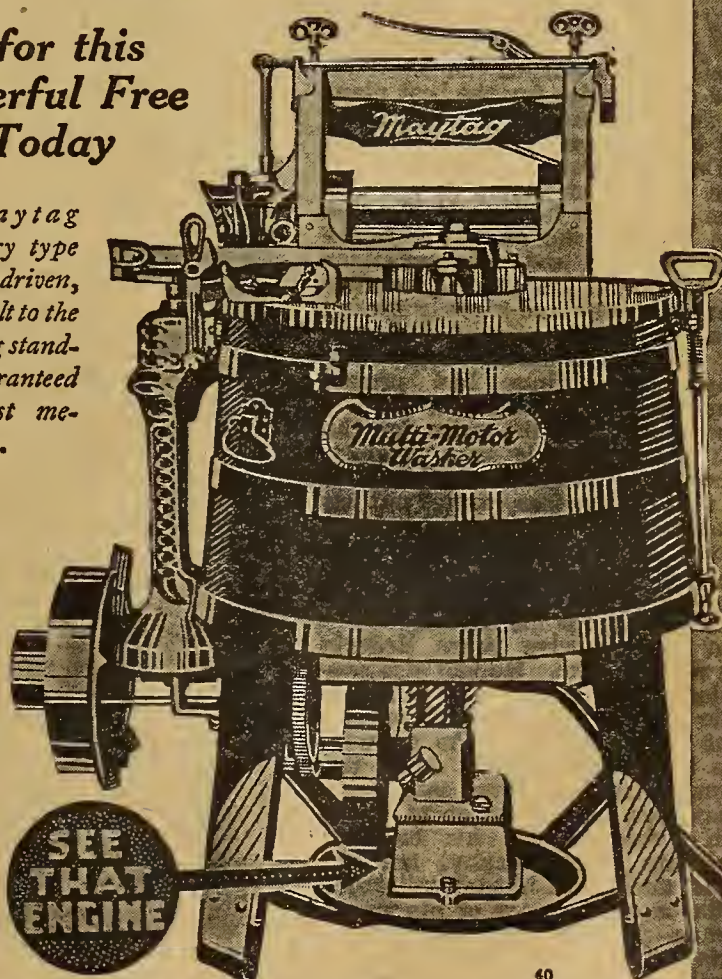
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A Bit of Iron

The Story of a Man Who Was Tried and Stood the Test

By WILLIAM H. HAMBY

MALACHI McDONALD stood in the cabin yard at three o'clock in the morning waiting for Roderic to come in from the stable. The boy had ridden in stealthily, hoping not to awaken his father. But Malachi had been waiting all night for the return of his errant son. Now the young man should meet him at the very gate, and give an account of his sin.

The moon, almost down, threw a weird light over the cabin and the rocky hillside field back of it where the chill night wind rustled the dead cornstalk leaves. And the old man, standing tall and straight by the gate, fierce as any fiery prophet of old, seemed to embody all the denunciation and anathemas that for thirty years he had hurled at evildoers. He was the preacher, the stern prophet of the hills. To him there were no shades of right and wrong, black was black and white was white. There was no degree of allowance, no mercy for those who transgressed. And this night his own son had disobeyed—and gone to a dance. He should answer.

Roderic came out of the stable after feeding the horse, and started for the cabin, whistling a gay, worldly little tune under his breath. He, too, was straight and muscular and walked with a glad, swinging step. But at the sight of his father, standing bareheaded, motionless by the gate, he stopped uneasy.

"What is the matter, Father, anyone sick?"

"Yes," answered the old man bitterly; "in soul."

The words that followed were seething, scorching condemnations.

Roderic, hot-blooded and self-willed, replied as fiercely. He denounced his father for a thousand restrictions—tyrannies, rules that were galling. He renounced his father's ideas of right and wrong, renounced his authority, renounced his Bible.

"Henceforth," said Roderic hotly, "I shall do as I please."

The old man towered above his son for a moment, his face livid, his rough, bushy hair touched with the white pale moonlight, and then without a word pointed down the road.

"Yes, I'll go," said the boy, "and I'll never come back."

And he told himself, as he walked in the late night those ten miles through the hills to the railroad station, that no law held him now. He was free from every petty, galling restriction; he would see the world and life; he would fling to the winds every hampering precept—he was free, free, his own man, answerable to nothing upon the earth or above it or beneath it.

Old Malachi stood motionless in the yard until his son disappeared down the moonlit road. He turned slowly and went into the cabin. He lit a coal-oil lamp, set it on the kitchen table, and spread open his worn old Bible. Whether searching for approval for his harshness, or consolation for a broken heart, did not show in his stern face. But at daylight the lamp burned out, the chimney smoked, his old head was bent upon his arms resting across the Bible.

WHEN the morning papers announced that the building commission had awarded the ten-thousand-dollar prize for the best plans for the new four-million-dollar city hall to the young architect Roderic McDonald, many of the best and most intelligent people of the city were glad, both for him and for the city. Those who knew the young man liked him and were ambitious for him, and on several smaller commissions he had already proved that he could not only conceive well but could accomplish well. The completed buildings had proved even better than the plans.

In addition to the prize for the best plan, Roderic was commissioned to supervise the building, to see that contractors carried out his specifications. For this he was to receive an additional twenty thousand. It was a great day for him, for besides the financial reward it promised big for his future.

In these twelve years Roderic had worked hard. He had also proceeded, as he had vowed, to throw aside all the precepts and restrictions of his youth. "I'm answerable to nobody, and I'll do as the whim pleases," he often said.

And yet, he did not go to pieces with drink as did his brilliant classmate, Dan Murphy; nor did he soil and wreck himself with vice as did more than one of his young friends. He was free and easy and professed no standards. He declared he always did as he pleased, without any sense of moral restrictions; and yet, business men, men

in office, his associates who were watching him, noticed he never pleased to go beyond a certain line. He never chose to do anything that would make him a weakling or brand him as a cad. None of the freedom he professed ever led him to acts that showed him cheap in mind or shoddy in soul.

The building commission awarded the contract for the erection of the city hall to the Wellington Construction Company. This pleased Roderic McDonald. They were one of the biggest and most successful construction companies in the country and, besides, he liked Hiram Archer, the manager. Archer had befriended him many times, and in spite of his driving executive ability he was a genial, lovable sort of a man.

THE building was to begin early in the spring. One day in April Hiram Archer called Roderic over the telephone and asked him to take dinner with him and his superintendent, to talk over the details. The young architect of course accepted.

They all greeted the young man very cordially. They had all been friendly to him before, but now the element of congratulation, the flattering expectation of coming greatness colored their greetings.

It was a good dinner and a merry one. At the close, when the table was cleared, they sat around at ease, discussing the new city hall, and commenting upon Roderic's excellent plans.

"But Mac," said Archer, leaning forward and drawing the plans across the table to him, "we find, owing to exigencies that have arisen since the contract was let, a few alterations will have to be made. That is what we wanted to discuss to-night."

It was said casually, in a tone perfectly matter of fact and sincere, but instantly a sort of chill aloofness crept over Roderic, and he felt an intangible line of conflict being drawn between them.

"You see," continued Archer, "there are two changes we want to suggest. Won't alter either the appearance or the usefulness of the building a particle, but will greatly simplify and expedite construction. These changes often are found necessary in the plans of the best architects."

"I've gone over this with the mayor and the chairman here and several of my experts, and they are willing. It is a thing, of course, we don't want published, for the public is always ready to cry graft in every piece of public work."

Roderic took the sheet with the suggested changes and studied it closely for ten minutes, and then slowly shook his head as he handed it back to Archer. "It would not be so good," he said simply.

The men sat up in their chairs and drew a little nearer. They leaned forward and put their elbows on

the table, the atmosphere grew more tense, less social.

Roderic felt the chill of aloofness deepen, felt the line of conflict draw nearer. With a keen understanding he had seen through the changes at a glance. They were changes that the public would never notice, but would save the construction company \$75,000 or \$100,000.

"No," frankly confessed Archer, "not quite so good. But pretty good. Fact is, Mac, we find we've got to make some sort of change or we are in a bad hole. Since we took this contract in December a labor trouble has forced on us a ten per cent increase in wages, and half the material in that building has gone up in price. We have laid it before the mayor and the chairman of the building commission, and the inspector here. They all agree that it would never do for the commission to cancel the contract and let it over to a higher bidder. It would ruin the administration now in power. We can't possibly afford to go on with this way. So the simplest way—and we knew, you being a reasonable young fellow with a brilliant future, would understand the necessity—is to make these slight changes which in no way endanger the building and which no one will notice."

It was a man-to-man sort of appeal. There was friendship past, present, and future represented in it. There was confidence in it. It was so reasonable that Mr. Archer stated it frankly, feeling sure that Roderic would agree. The mayor agreed to it, and the chairman of the building commission.

Roderic sat looking down at the plans. There was a moment's silence all around the table. His future was pretty largely in the hands of these five men. Two, maybe five, generations would pass away before the effect of these changes were even visible on the building. Its only effect would be to shorten the usefulness of the building fifty or a hundred years. What would that count two centuries from now? Of course he would yield—what was fifty years to him when that fifty years was two centuries away? And these men and their friendship counted tremendously now.

"Gentlemen," he said very quietly, "I am employed by the city to see these plans carried out. They must be followed."

THEN the real struggle began, and no man who has never been at mental grip with a strong man knows what a wrestling that is. There were five strong men, older men, seasoned men, men who knew the world and had fought every angle of it, men keen, resourceful, driving, masterful. Archer, the man who dominated more than two thousand employees, faced him, and they had it out.

He argued as a matter of necessity. But Roderic doubted this. The architect believed there was still profit in the building. He appealed as a friend and intimated other even bigger commissions that he would throw in the young architect's way, and the mayor added his prestige to this.

And when everything else failed they offered him a fourth of the savings—\$25,000. At last they got angry, showed him how they could ruin him, and offered him his last chance to decide.

It lasted an hour, two hours. It was a grapple that made Roderic's very soul sweat. He could see every reason in the world why he should yield, but always he came back to the one simple point:

"It is my business to see it done right. It must be done."

They gave it up. No power of friendship, or money, or fear could get by that single iron bar—"It must be done."

Roderic went alone to his room. Exhausted, but with the great sense of exhilaration the runner feels who has run long but won, that the climber knows when he stands after infinite toil on top of a high mountain.

He dropped into a chair in his room, physically and mentally exhausted, but with a great glow inside—the fire in the heart of the man who has been tried and stands the test. He was thinking little of threats to ruin him; he was thinking nothing at all of the future, for really he had no way of knowing that this night's work would become known, and so indelibly stamp his integrity on his fellow townsmen that no gift of office or esteem could ever be withheld from him. No, he was scarcely thinking at all. He was feeling the supreme glory of manhood—to be tested and find one's self a man.

Then he began to remember how easy it would have been to yield, and to wonder why he did not. And across his [CONTINUED ON PAGE 25]



"Yes, I'll go," said the boy, "and I'll never come back"

Some Eggless Cakes

THE hens are on a strike and eggs are 50 cents a dozen, but the family expects as many kinds of cake as heretofore, so I have put on my thinking cap with the following results. Not a single egg has been used to make either the cakes or the frosting in these recipes.

FRUIT CAKE—Cream well together one cupful of sugar and one tablespoonful of shortening. Add one cupful of apple sauce and one cupful of other cooked fruit, such as berries, peaches, plums, or even pear butter. Then one teaspoonful of soda dissolved in one-half cupful of hot water, two cupfuls of flour, one teaspoonful of cinnamon, one-half teaspoonful each of ginger and cloves, one-fourth teaspoonful of nutmeg, sifted with flour, one-half cupful of raisins, one-half cupful of currants, and citron and orange peel to taste.

WHITE CAKE—Cream one cupful of sugar and one tablespoonful of shortening. Sift together two or three times two cupfuls of flour, two teaspoonfuls of baking powder, and one-half teaspoonful of salt. Add to above, alternately, with portions of one cupful of milk until all are added, beating well as each portion is added. Flavor with lemon or vanilla and beat all three minutes. Bake in hot oven.

MARBLE CAKE—Proceed as with White Cake, dividing the dough into halves or thirds, color the portions pink and with chocolate, etc., and pour into pan in uneven layers.

CHOCOLATE CAKE—(Without shortening.) One cupful of rich, thick buttermilk, one cupful of flour. Sift together one cupful of flour, three tablespoonfuls of cocoa, one-half teaspoonful of soda, a pinch of salt. Flavor with vanilla, beat all together, bake in moderate oven.

COCOA FROSTING—One cupful of sugar, one tablespoonful of cocoa, one-fourth cupful of hot water. Boil frosting till it hairs, beat till it cracks, and then spread.

EGGLESS FROSTING—One cupful of sugar, one-third cupful of milk. Boil till it threads, add flavoring, then beat with spoon till like thick cream, spread quickly.

FOR THE CHILDREN—Two tablespoonfuls of lard, melted, one cupful of molasses, one teaspoonful of soda in one cupful of boiling water, two cupfuls of flour. Mix well. Bake in thin sheet. When cold, cut with various-shaped cookie cutters and cover with white frosting. Or fashion a doll for May, a horse for Johnny, a Teddy bear for baby, marking the eyes, etc., with the white frosting.

RENEWING CANE SEATS—When cane seats have become slack they may be renewed and shrunk to fit the framework of the chair by sponging both sides of the cane with hot soapsuds to which a little salt has been added. After washing, put in a current of air and when almost dry cover with a cloth and press with a hot iron. The cane will look like new and wear longer than if it is not shrunk.

C. A., Illinois.

New Puzzles

State Abbreviations

Answer the following questions by giving the abbreviations of the different States of the Union:

- Which of the States would be the most seaworthy?
- Which of the States is the best for the miners?
- Which of the States is as good as a mile?
- Which of the States do we fear the most?
- Which State does the invalid send for?
- Which State is the head of the family?
- Which State is worth the least?
- Which State represents a musical tone?
- Which State do we think the most of?
- Which State do the Chinamen flock to?
- Which is the religious?

Answers to Puzzles

Puzzles Printed Last Issue

A Clever Rebus

Be considerate (beak on cider eight).

The Blue Envelope

[CONTINUED FROM PAGE 20]

"Come along," said Minnie Lacy, and almost led me across the hall into her own room. We were both a little embarrassed by this time and we didn't say much, but she had a tiny gas stove and made some bouillon for me and toasted some crackers. It tasted so good—I suddenly realized that I was very hungry.

"Look here," she said, "what in the world is a kid like you doing here in New York with such clothes, living in a cheap little room in an ordinary boarding house? You worry me."

Somehow it was very comforting—she seemed really to care. So, as quickly as I could, I told her about Mrs. Alex and Uncle Bob and Father's idea that I should earn my own living, but I didn't say a word about Ranny Heeth. When I had finished she sat down and looked me over.

"It's like a book," she said. "Well, I beg your pardon for asking so many questions, but you look so fluffy and young and little and scared and unhappy that I was afraid something dreadful was the matter. If this is only a two-year stunt and you've got money enough to live on till you get through the business school, you're all right."

It was just as dear and kind and genuine as it could be, and right then and there I made my first friend in New York. I begged her pardon for having been so hateful the day before and we talked till midnight. She told me she was the forewoman in a place where men's neckties were made, and she described how they had to be cut and sewed, and how the girls worked in piles of colored silks—it was just as interesting as it could be, and made me feel quite differently about neckties. Always before they'd seemed about the most uninteresting things in the world, and I'd never thought of anyone making them, though naturally they couldn't spring full-grown out of boxes like Minerva from the head of Zeus. I said that to Minnie, and she wanted to know who Minerva and Zeus were, and when I'd explained as much as I knew, which wasn't much, she said she thought they might call the new figured silk line they were putting out the Minerva. And that made me shout, the first real laugh I'd had for so long that it sounded strange to me. Anyway, I felt heaps better when I went to bed at last.

[CONTINUED IN NEXT ISSUE]

A Bit of Iron

[CONTINUED FROM PAGE 24]

mind flashed like an electric sign when the current is turned on:

"Where did you get the iron?" And now—it came as clear as a sunrise over those home hills—he saw that it had been those unshakable laws of conduct which his father had early instilled which had kept him all these years from going the ways of failure and ruin. Here and there he remembered he had held back, drawn away in disgust from ugly, sordid, sinful things—and it was all because of those early years of training which seemed so harsh.

Perhaps old Malachi McDonald, as the years passed, discovered that some of the things he thought were the Lord's ways were merely his own harsh will. Possibly he learned that iron will should be tempered with merciful hearts. Possibly time had softened and sweetened him. About that I don't know.

One evening in April, when the wind was warm and fragrant with spring, he sat in the cabin door, erect as ever, his eyes still keen, with his Bible on his knees. But he was looking away at the white dogwood on the bluff. And he was thinking of what he had seen in a paper that day. There was a long article and a picture—a proud article—about Roderic McDonald.

The old man's bushy, iron-gray head sank slowly forward, and there was a splash on the worn page of the Book.


There was the chug, chug of a motor car, an unfamiliar sound on the rough road. The old preacher rose up and stood in the cabin door.

It stopped at the gate. A man, full-grown, strong, fine, got out and started up the gravelly path.

"Roderic!" The old preacher met him halfway to the gate, and threw his arms around the son.

"Roderic!" It was the first time in his life the son had ever seen his father break under emotion. "I've been waiting all these years to tell you I was sorry I was so harsh."

The stalwart son choked. "And, Father, it has taken me all these years to know I am glad you were."



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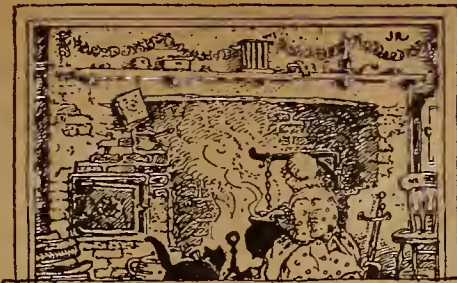
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Housewife's Club

In a Million-Dollar Kitchen

By Ruth M. Boyle

A MILLION-DOLLAR kitchen may make you think of an establishment where lavish expenditure is the rule and economy is unthought of because unnecessary. As a matter of fact, an exactness in planning and measuring and an economy in the prevention of waste that would amaze the average housewife prevails in these great establishments where hundreds of factory cooks daily do the baking for a nation.

The cook in the ordinary home "uses her judgment" about measuring, to a large extent. When she is baking bread she judges of the heat by the feel of the air in the oven; she puts it to raise in a warm place which may vary by ten degrees from one baking to another. She has no accurate way of testing her flour to tell whether it is made from hard or soft wheat.

In the million-dollar kitchens there are no failures. Take the ordinary cracker or wafer you pay five cents a box for. Every ingredient necessary to make it—the yeast, the soda, the water, the flour—is weighed exactly. The flour is carefully tested; the cooks know just how old the yeast is and the exact temperature of the water. The dough is mixed for a definite number of minutes by a machine which makes a certain number of revolutions each minute. It is set to rise in a room arranged so that the temperature and amount of moisture is fixed and remains the same summer and winter. After the dough is rolled out, dusted with flour, and cut into final shape by great machines, it goes to the oven. In the oven there is a slowly revolving wheel with long swinging shelves. There is an opening in the oven on one side. As the shelves slowly pass the opening, the baked crackers are removed and the unbaked ones placed on the shelves. One revolution completes the baking. The speed with which the wheel moves never varies, the temperature is always the same, and the crackers never come from the

oven overheated or underdone. The whole process down to the packing in moisture-proof packages is a marvel of exactness and economy.

The housewife can never reach the perfection of the factory cook. She hasn't the tools. But there are ways in which she can approach nearer to that perfection. She can make use of a thermometer in testing her oven, in trying the temperature of liquids, etc. A good pair of scales should form part of her kitchen equipment, and should be used every day. She should have a set of standard measuring spoons—a tablespoon, a teaspoon, and a half-teaspoon. Instead of teacups she should use a standard measuring cup.

Putting in an extra egg or an extra teaspoonful, or using a heaping measure instead of a level one, "just for good measure," is wasteful and unscientific. The factory cooks find out, by testing, just the proportion of ingredients that results in the finest product, and they stand by that proportion unvaryingly. A woman who is at the head of a great food factory says that her own kitchen was wasteful of time, energy, and money, but that she never realized it until circumstances forced her to learn scientific methods in the world of business management.

Pastry-Making

POOR pastry, which is most indigestible, is due entirely to the manner in which it is made. It is not possible to have continued success in pastry-making when one depends on luck alone.

Accurate measurements are essential. Have all of the ingredients measured before mixing. The lard and water must be cold as possible. Do not mix the dough with the hands. Mix the flour and lard with two knives, cutting horizontally.

Too much water, like too much handling, makes the dough tough. Roll the dough very lightly until thin, bake in a moderate oven, and the result will be a pie that will melt in the mouth and be entirely digestible.

A Restful Change

By Lillian Trott

FOR the invalid or for the child confined to bed for a tedious illness covering a wearisome length of time, supply an extra bed for the latter part of the day, one provided with wheels or castors. By this means he may be transferred to another part of the room and relieved of monotony. Especially in case of a broken bone or a wasting, hopeless disease this break comes as a boon. The patient may even be moved outdoors with impunity.

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One Whole Month Left MIDNIGHT, FEB. 20, is the official hour in which the period for submitting sets of suggestions will end. Sets can be mailed any time up to this hour in participants' own home-town postoffice and envelopes or packages post marked to show that sets were mailed within the period defined will be accepted and sets considered.

We'll Send All Details Get Them at Once. We will send all interested, complete information and instructions to enable you to play the Game correctly and intelligently. Use the coupon below, if you desire this information.

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The Official Key Book 3,000 items have been listed in a booklet which we have given this name. This list was first prepared for the artists and, as a title must be listed therein in order to be considered, it follows that the titles to the fifty pictures must be in this book and its importance will be readily realized.

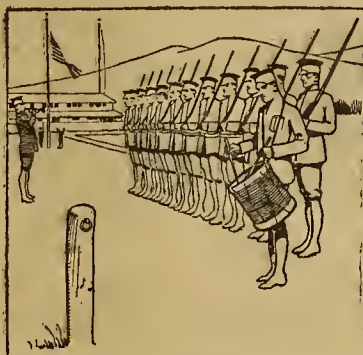
The Reprint and Reply Book Six suggestions, to any one picture or all pictures, will be permitted in the Reprint and Reply Book. In fact, spaces for that many suggestions are provided opposite each picture. (This book contains all fifty pictures.) By using the Reprint and Reply Book one will be enabled to submit a complete set of suggestions in compact and convenient form.

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No. 41—What Farm Implement, Machine Part or Mechanical Term Does This Picture Represent?



No. 46—What Farm Implement, Machine Part or Mechanical Term Does This Picture Represent?



No. 42—What Farm Implement, Machine Part or Mechanical Term Does This Picture Represent?



No. 47—What Farm Implement, Machine Part or Mechanical Term Does This Picture Represent?



No. 43—What Farm Implement, Machine Part or Mechanical Term Does This Picture Represent?



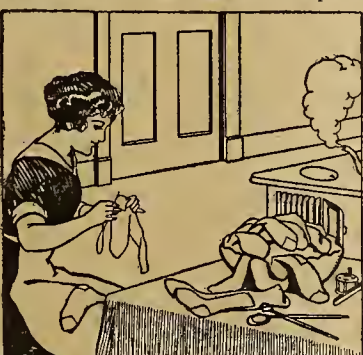
No. 48—What Farm Implement, Machine Part or Mechanical Term Does This Picture Represent?



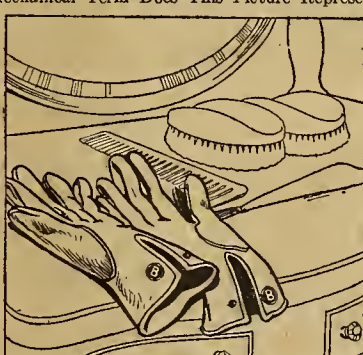
No. 44—What Farm Implement, Machine Part or Mechanical Term Does This Picture Represent?



No. 49—What Farm Implement, Machine Part or Mechanical Term Does This Picture Represent?



No. 45—What Farm Implement, Machine Part or Mechanical Term Does This Picture Represent?



No. 50—What Farm Implement, Machine Part or Mechanical Term Does This Picture Represent?

Do Your Best

Here's how. Take care in preparing your sets of suggestions. Do not make suggestions carelessly nor use them recklessly, but if more than one title appeals to you for a picture, do not arbitrarily discard it. Study every picture carefully and submit as many suggestions as you think necessary. (Remember, if you make up single picture sets, to make up a complete set in every case. By complete set, is meant pictures one to fifty with one suggestion for each of the fifty different pictures.) If you want to make a second suggestion or a third, make an additional complete set in each case, to include the additional suggestions. The foregoing applies to single picture sets only.

The Reply Book Helps

Understand, the Reprint and Reply Book allows you to make any number of suggestions—up to six—to any picture. Do not use a title until you have made sure by reference to the Key Book, whether a personal or public file copy, that same will be considered. If you use a Reprint and Reply Book put the suggestion you think best in the top space of the six provided, and your second best suggestion in the second place, etc., etc. Do not send your sets in until you have made sure that you have done your very best. If you send in single picture sets be sure you have all fifty pictures in their proper order and but one print or copy of each picture. Be sure to weigh your sets and affix postage at the first-class rate of 2c for each ounce. Address your packages or envelopes plainly to this department and, while not compulsory, it would be an added precaution to register your sets.

THE JUDGES

All sets of suggestions will be turned over to a committee of judges who will be:

MISS GERTRUDE B. LANE, Editor WOMAN'S HOME COMPANION.

J. M. SIDDALL, Editor AMERICAN MAGAZINE.

BRUCE BARTON, Editor EVERY WEEK.

These judges are of such prominence that we need not say that the best interests of all participants will be safeguarded and that the findings of these judges will be absolutely fair and impartial.

Miss Gertrude B. Lane seldom signs an editorial or an article with her own name, but as editor of the WOMAN'S HOME COMPANION, her personality is felt as a potent force by thousands of women readers. The story of her rise from the bottom of the literary ladder to her present position of the greatest woman editor in the country is a remarkable one.

John M. Siddall, the brilliant editor of THE AMERICAN MAGAZINE, has made a remarkable record for a young man. Beginning as a Cleveland newspaper reporter he has worked his way to the top of his profession, the editorship of one of the great magazines of this country.

Bruce Barton is a name that is becoming better known every day—why? Because he is doing such a splendid work in editing the new illustrated weekly EVERY WEEK, which is taking the country by storm. The son of a Chicago clergyman, Bruce Barton has been in literary work ever since he left college.

Important!

We would suggest that you do not mail your set until you have read over the Circular of Complete Information carefully and made sure that every step you have taken is in accordance with the rules and instructions set forth therein. Accuracy and thoroughness are more important than haste. Your set will receive just the same consideration as every other set whether it is made up of single pictures or a Reprint and Reply Book set. It does not matter to the judges whether you use a Reprint and Reply Book, but its convenience and helpfulness must appeal to you, if you are really in earnest in your desire to submit a winning set and incidentally remember that you are allowed to submit as many as five different sets. Do not stint yourself. DO YOUR BEST.

These are the last ten pictures, 41 to 50. The Reprint and Reply Book contains all pictures complete, Nos. 1 to 50.

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When it comes to the price of "Ball-Band" Rubber Footwear, remember that "Ball-Band" wears so much longer and gives so many extra days wear, that its actual cost becomes very low.

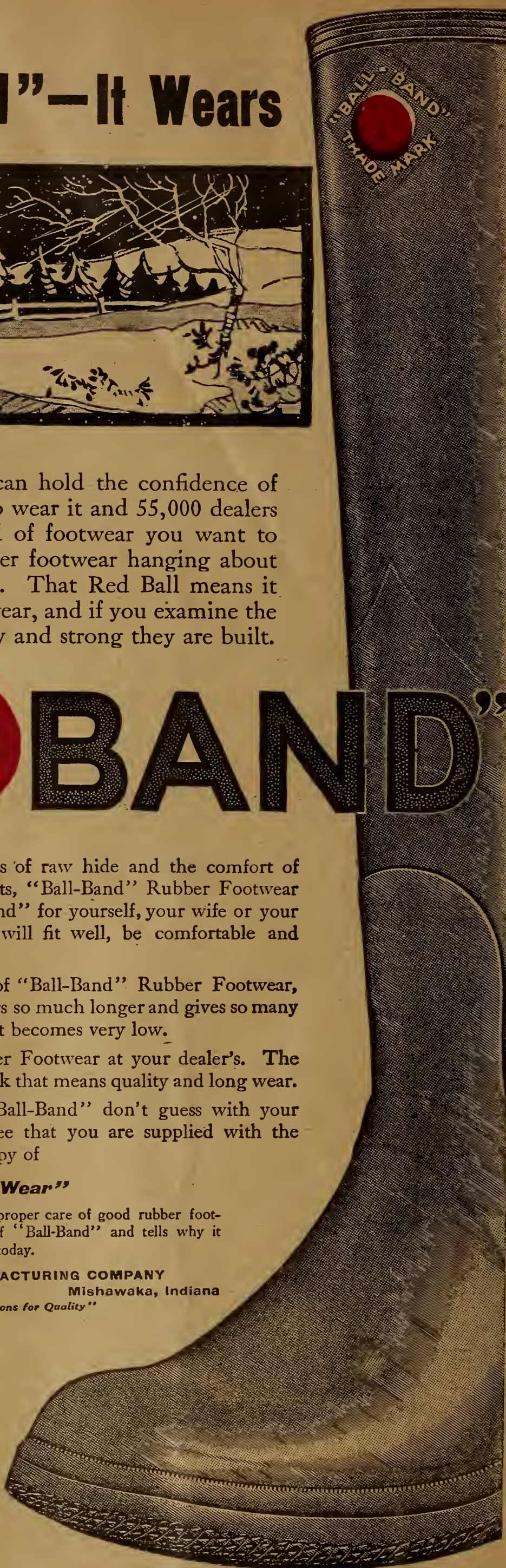
Ask to see "Ball-Band" Rubber Footwear at your dealer's. The genuine has the Red Ball—a mark that means quality and long wear.

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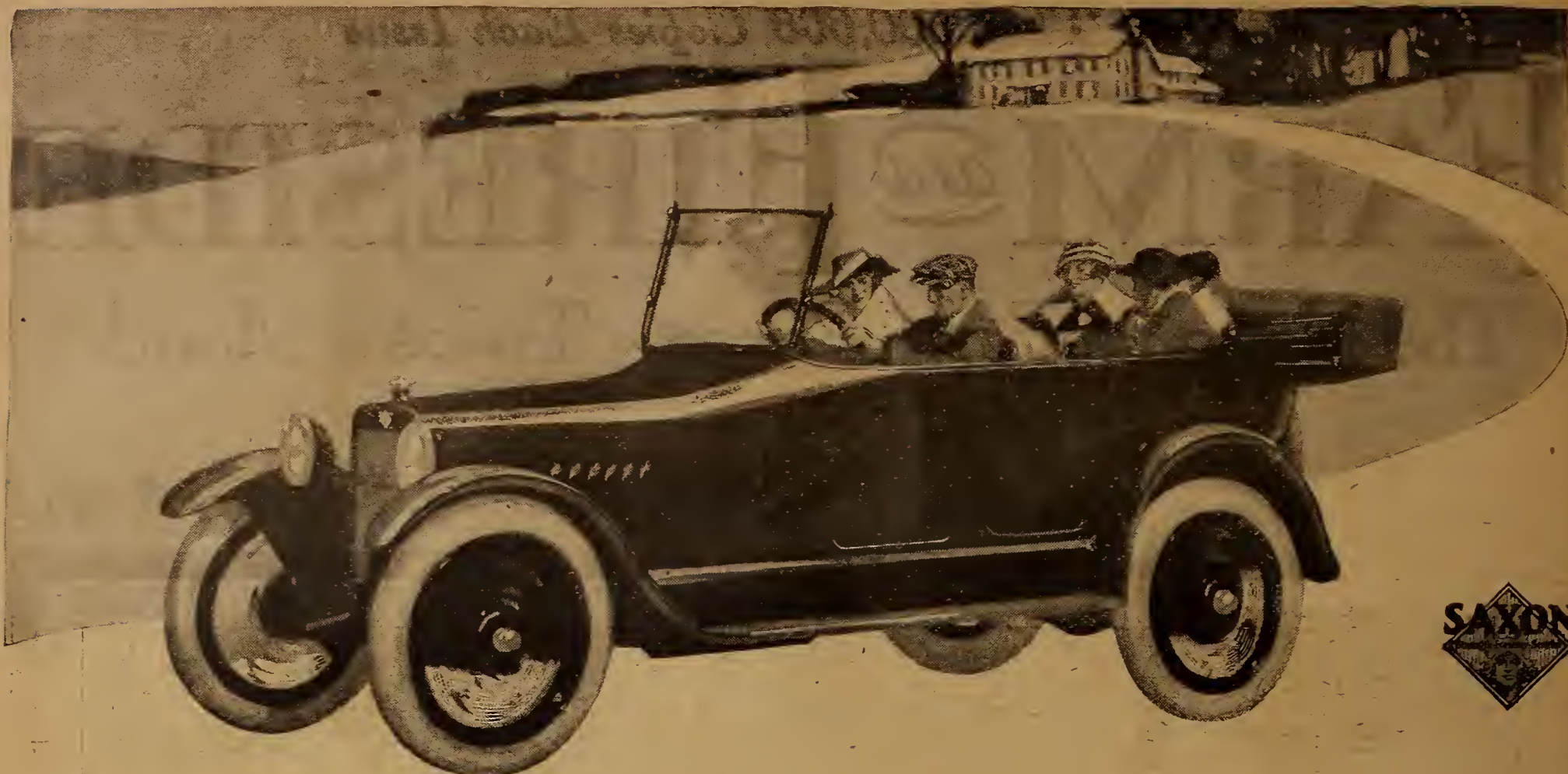
Saturday, February 3, 1917

Western Edition



PHOTOGRAPH BY CLARENCE A. PURCHASE

The Goose Girl



There Is a Strong Public Belief In the Superiority of Saxon "Six"

At last it has dawned upon motor car buyers in general that, strictly speaking, there is no rivalry between a car of less than six cylinders and Saxon "Six."

It has become obvious, even to those uninitiated in engine intricacies, that the "six" motor is inherently superior to the motor of fewer cylinders.

Why this is true is easily grasped.

With less than six cylinders propelling the car there are bound to be slight intervals between explosions.

With six cylinders, as in Saxon "Six," these intervals between impulses are eliminated and the power-stream produced is of practically perfect continuity.

Necessarily then, in the "less than six" with fewer impulses at any given time the force of each impulse must be more severe upon all moving parts.

In Saxon "Six," for instance, as compared with one of the best known "less than six-

cylinder" cars of like price, there is nearly 98% more impulses per minute at 20 miles per hour.

So naturally each impulse at any given time is far less severe upon moving parts.

Another disappointing feature of this "less than six" is the fact that there is considerable vibration. This is caused by the intervals between impulses spoken of before.

And this vibration causes friction which is the greatest enemy of the motor. It spells greatly shortened efficiency, and far higher repair and replacement costs.

And it means impaired performance in every phase of motor car work.

A gradual awakening to these disadvantages of the "less than six" has incited buyers

to a more careful investigation before purchasing.

And investigation has usually terminated in the same clear-cut conclusion—that Saxon "Six" is unmatched by any less-than-six-cylinder motor of like price.

So that public preference has swung strongly toward Saxon "Six" as the best car at less than \$1,200.

To such an extent that production has never proved quite great enough to satisfy the demand.

This in the face of the fact that each year has seen double the number of Saxon "Sixes" built.

Saxon "Six," of course, has other very material advantages.

For one, it accelerates with unusual rapidity, going from standing start to 45 miles

per hour in 23 seconds. That is 22% faster than the time of the best "less-than-six" we know of.

For another, Saxon "Six" is so amazingly flexible, by virtue of its highly perfected six-cylinder motor, that it relieves you of the necessity of gear shifting to an unheard of extent.

And another is the tremendous speed and power of Saxon "Six." There is a greater amount than you are ever likely to require. It is there so that no set of road conditions can ever balk you.

Lastly, there is the economy of Saxon "Six" in the matter of repairs, and gasoline, too. 206 stock model Saxon "Sixes" in a 300 mile non-stop run established an average of 23.5 miles per gallon of gasoline.

Saxon "Six" is \$865; "Six" Sedan, \$1250; "Four" Roadster, \$495; f. o. b. Detroit. Canadian prices: "Six" Touring Car, \$1175; "Six" Sedan, \$1675; "Four" Roadster, \$665.

SAXON "SIX"

A BIG TOURING CAR FOR FIVE PEOPLE

SAXON MOTOR CAR CORPORATION, DETROIT

FARM *and* FIRESIDE

Published Twice a Month by THE CROWELL PUBLISHING COMPANY, Springfield, Ohio

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Vol. 40

Springfield, Ohio, Saturday, February 3, 1917

No. 9

A Lay of 4,000 Eggs a Day When Fine Feathers and Heavy Laying Go Hand in Hand

By B. F. W. THORPE



Yesterlaid type of male; brother and half-brother to over thirty 200-egg pullets

IT ISN'T much fun to be laughed at. It isn't encouraging to hear people say time and again, "It can't be done." Nevertheless, a constant repetition of such remarks, combined with some very strong convictions on his own part, was largely responsible for the word of encouragement, "Go to it," which finally came to Rolla C. Lawry from his financial backer, and which resulted in one of the biggest egg farms in the country, Yesterlaid Farms.

We always have a lively interest in what the "big fellows" are doing in all lines of business. Unfortunately, in the past we have not had long to wait to learn the outcome of most big poultry enterprises. Where flocks of layers running into thousands had been undertaken it could generally be considered a safe bet that two or three years would find the big poultry project coming out the "little end of the horn." But of late, I am glad to say, there is less plunging into big poultry ventures, and a greater proportion of those making a sane, gradual start in large poultry enterprises are getting onto a substantial footing.

Last summer I visited Yesterlaid Farms, which are located in Franklin County, Missouri. This big practical poultry business had passed its experimental stage several years ago, and now every year is showing an attractive profit balance above every factor of expense and depreciation.

After getting all possible scientific and experimental poultry helps, Mr. Lawry undertook the job of building up a big poultry enterprise for a hard-headed business man who wanted a practical demonstration made of egg-farming on a scale large enough to show the possibilities of the business. He had faith that he could make good with that kind of a contract by means of developing a strain of uniformly heavy layers, gradually multiplied into thousands of the same laying quality.

Mr. Lawry believed from the start, ten years ago, that he must develop a department of pedigreeing in order to locate individual birds possessed of unusual power of heavy laying. He planned this department on much the same basis as the seed-plot plan is conducted on corn-breeding farms. The corn breeder tries out the kernels from his most desirable corn plants from year to year. When he has a strain that breeds true with a uniform heavy yield, that particular strain of corn is kept producing in a seed plot from which his field crops are seeded. So Mr. Lawry planned his "White Leghorn seed plot," or pedigree department, and developed his 1,000-hen unit system on this basis.

This plan required that all the hens used to make up the 1,000-hen flocks should come up to a definite requirement of production of eggs and also to score up to a high standard of exhibition points; for it was his purpose to combine heavy laying with good looks from the showroom standpoint in so far as possible. The same strict regulation was followed with the males used in his breeding pens.

The plan Mr. Lawry followed in getting together his foundation stock at the start is full of significance and interest. Instead of getting his breeding birds all from one big poultry concern, he selected lots of hens and males from a half-dozen or more of the foremost breeders of White Leghorns in this country. When these shipments of breeding prospects arrived at his budding egg farm, a close study and examination of the individual birds were made, which included the points of size, vigor, weight, body conformation, and indications of egg type. In addition, the birds were scored for exhibition points. Out of all the prospective breeding birds received, Mr. Lawry selected the birds that met his requirements.

Then began his plan for line-breeding and building up a system based on trap-nest production and exhibition requirements. This plan of breeding has been followed year after year from the start. Nothing now is raised except chicks from the trap-nested

hens mated with equally well-bred males. Selected pullets from the trap-nested pens go into the trap-nest breeding pens each year and the cockerels go to head the large flocks.

When Mr. Lawry first voiced his aim of working for heavy-laying qualities, combined with a high degree of beauty and exhibition points as well, many breeders of exhibition poultry stock said it couldn't be done. He admitted at the start that he was tackling a man-sized job, but did not hesitate to get busy. Now he can show a fair proportion of Leghorns that can make a good score in the showroom and also prove their worth in the trap-nesting pen.

One of his convincing arguments in favor of his unit system of handling his layers is the possibility of placing expenses and receipts of the business on a definite basis. Reckoning results by means of 1,000-hen unit flocks saves time and expense in accounting and without which, where 5,000 to 10,000 layers are handled, the bookkeeping required becomes too complex. Every man is given a certain kind of work. The feeder does nothing but feed, so he does not become overworked and careless. The cleaning and littering of the houses are done regularly by other men. The incubating is also done by experts. Horse-power and motor power are used to the fullest possible extent in cutting and grinding alfalfa, grain, straw, bone; also in pumping water and for every mechanical use that will save hand labor.

The first two or three years' developing of a satisfactory strain was an ordeal that required super-courage. At the same time, building up a reputation for fancy-quality table eggs and getting in touch with the best markets was also a problem of much importance. But the sale of high-class table eggs throughout fall and winter was soon provided for, and as the reputation of the Yesterlaid strain became known the sale of hatching eggs during the spring months became profitable. But it was the low price of summer eggs that furnished an annual discouragement. Manager Lawry therefore trained his business faculties on the problem of better sale of summer eggs.

He succeeded in interesting the local ice interests and some other townspeople in the formation of a co-operative ice and storage plant. A new building 50x100 feet was built and combined with the ice plant formerly in use, which furnished a capacity of over 1,000 tons of ice. Seven rooms for storage of perishable food products were provided in the new building, but refrigeration of eggs, butter, fruit, and vegetables has the first call. Thus he is able to hold thousands of dozens of hot-weather-produced eggs for fall consumption, thus adding a net profit of about 10 cents a dozen over selling them as soon as produced.

As this egg farm steadily grew and added more 1,000-hen units, the problem of incubating the eggs to renew their large flocks assumed a bothersome aspect. First, the services of the largest incubator on the market was used, but it failed to "speed up" to Mr. Lawry's requirements. Then home-made hatching rooms holding 2,000 eggs each were substituted, and proved entirely satisfactory so far as the suitable room space at the farm allowed. But by use of these, only 10,000 eggs could be incubated at a time. Then he conceived the idea of making a large hatching chamber in his refrigerating plant.

That idea seems preposterous at first, but when it is remembered that the construction for cold storage is scientifically prepared to retain cold and insulate against heat, it will be seen that there is not much difference in the principles involved in incubation and refrigeration. It took plenty of skill and experimental work to convert the great cold-storage room into an immense incubator where 100,000 eggs can be incubated at once. At the time of my visit I spent a hot half-hour in that hatching-room, where thousands of chicks were picking their way out of the shells to liberty every day. This great hatching chamber is operated for 50 cents a day, exclusive of labor cost. In this hatching-room, which is [CONTINUED ON PAGE 31]



A good example of heavy-laying and exhibition type of White Leghorn hen



This poultry apartment house accommodates 1,000 layers. A disappearing stairway leads to roosting-room. Buildings are 30x60 feet and have every convenience the layers need

500 Hens on an Acre

Five Years of Our Poultry Work on a Small Place

MRS. HARRIET HORNBECK

A LOT of our neighbors said it couldn't be done when they learned we were going to try to keep close to 500 laying hens on an acre of land. The general verdict was this: "To keep that many chickens and have them continue productive and healthy year after year would require plenty of land where the birds could have a wide range." Well, such opinions were not encouraging, but we stood by our proposition and here we are five years from starting and still in the game.

To be exact, our little place contains only three fourths of an acre all told. But when we bought it five years ago the substantial, attractive house with woodshed and small poultry house and a nice plot of land looked good to us for a start in the poultry business. And Husband, being a carpenter, could use his spare time preparing the equipment as we should need it. We had two incubators at the time and got them loaded with White Leghorn eggs and under way in February, 1912. When the chicks began to come out we put them in lots of fifty in fireless brooders, and as they grew divided them into smaller flocks. By this plan, with constant careful attention, the chicks did well. But when our poultry business grew in later years, plans for lessening labor had to be developed. Meanwhile, Husband was making colony houses during off hours. These houses are 5x10 feet, divided in the center. One half of the floor space of these houses is enclosed with composition roofing material except window and door. The other half is enclosed with wire poultry netting. Two sides of the wire-netted section are enclosed when necessary with light adjustable frames covered with two-ply roofing, and the front frame with muslin. These frames are fastened in place by means of wooden "buttons" at each corner. This plan of housing young chicks works fine, and during the winter season, by putting in nests in the enclosed end, 20 Leghorn pullets and a rooster are accommodated in each house. In these small houses, when used for layers, dropping boards are put in three feet from the floor. The nests are under dropping boards three in number. The hens enter nests at the rear, and a hinged door in front gives easy access for gathering eggs. All of these furnishings can be easily removed when needed for chick-brooding purposes and for convenience in cleaning and disinfecting. These houses also give good satisfaction for breeding pens.

Every Puny Chick is Snuffed Out

IN THE fall, as cold weather approaches, the rear frame is buttoned on, next the end frames, and a muslin frame is partly or entirely used during stormy and cold weather, as required. When spring approaches, the frames are gradually removed and the birds are always kept dry and comfortable. We find we get a better egg yield in these small houses than from the hens housed in the larger buildings. The cost of these small houses is about \$10 each for the material required. The front is seven feet and the rear four feet high.

The first summer, after selling the cockerels and 12 pullets, we had 120 pullets to keep for layers. Our policy from the start was to kill every crippled or unpromising chick as soon as hatched. This practice requires courage, but it pays and saves much annoyance and loss later.

I have tried two separate experiments in raising chicks that were unthrifty when hatched, but found "the game wasn't worth the candle" in both cases. One chick was given separate care, and when old enough was given the liberty of our garden and had the best of care and feeding throughout the summer. It was hatched May 21st, and proved to be a pullet, but never laid an egg until the following June. From then until September 19th this pullet laid only 33 eggs, then molted. The other experiment turned out a trifle better. But these two cases resulted in my decision to make way with all unthrifty chicks as soon as hatched.

Late in the fall of the second year a permanent laying house 50x14 feet was built, divided into two pens 20x14 feet, and a feed-room in the center 10x14 feet. In the feed-room a pump was installed. A two-story barn 20x14 feet, with basement, was also built at the same time. Our 120 layers meanwhile were doing their part by furnishing the "sinews of war" with which to pay expenses and furnish additional equipment. During the months of March and April the eggs laid by the 120 pullets paid the feed bills for the hens and the little chicks, and paid for all the material used in building the large poultry house, digging a well, and cement for floors except a balance of \$4.60.

In the fall of the second year our layers had increased to 325 pullets. We then sold some of the pullets and yearling hens not needed for breeders and began the second

winter with 320 layers. Again we increased our housing room by building several 14x14-foot houses along the slope of a hill. These houses are built for permanent use, and have a basement which affords a scratching pen in addition to the main floor. In these houses we installed coal-heating brooding stoves, 500-chick and 1,000-chick sizes. As an experiment, Husband made a brooder from sheets of galvanized iron which, with curtain, was fitted to a small coal-heating stove. The hover was arranged to raise and lower by means of pulleys. This home-made stove brooder cost for material just under \$5. It takes good care of the chicks too.

For bedding under the hovers we use a commercial litter, and when that is not available we use peat moss. Using the commercial litter has lightened the labor of caring for our young chicks more than any other improvement we have tried. Previously when chaff, cut straw, hay-floor cleanings, etc., were used, we had to change the chicks' bedding every week.



A battery of brooder houses which also house layers when developed. Net income from 500 hens varies from \$750 to \$1,000, not counting labor

Now by using the commercial litter, which absorbs all the moisture, no changing of litter is required until the chicks are ready to do without heat. The floor of the remainder of the brooder house is covered two to three inches deep with sand. When the weather is too stormy and cold to run out, we practice moistening the sand with water. This has the same effect in preventing leg weakness and increasing the vigor of the chicks as results from their running out on the cool, moist ground.

The feeding method worked out for our chicks is as follows: Nothing is given them to eat for thirty-six to forty-eight hours, but before the first feed is given they have a chance to pick up a little chick grit when first placed under the hover, where the temperature is at first kept at 90 to 100 degrees Fahrenheit at the edge of the curtain. Before any solid food is fed, the chicks are given sour milk in chick fountain. The first solid food fed is commercial chick feed—just what they will clean up in ten minutes. They are then fed the chick food which contains meat scrap as well as grain once every two hours for three days, and in addition a little chick grit and charcoal. Fresh sour milk and fresh water are provided several times a day for drink. Once a week enough permanganate of potash is used in the drinking water to color it a light wine color. After chicks are three days old a dry commercial "growing

mash" is kept before the chicks constantly in hoppers, and the chick feed and scratch feed are given only three times daily in the litter. The commercial chick feed is discontinued when the birds are about eight weeks old and a home-mixed scratch mixture is substituted. The growing mash is continued until the pullets begin to lay, then a good laying ration is substituted. Just as much, if not more important, than the mash, scratch feed, and sour milk is a regular supply of green food—clover sod, sprouted oats, mangel beets, cabbage, etc. Of course fresh water, grit and shell are always before them.

Handled and fed in this way our Leghorns began to lay when about five months old. The cockerels at eight weeks old are sold as squab broilers at an average of nearly two pounds live weight. The pullets are divided into flocks of about 100 for each 14x14 house, where they remain until the houses are wanted for chicks again. The young stock, after selling the cockerels, have the run of a half-acre yard until housed in laying quarters. The layers and breeding stock have no range from about September 1st until late in the following summer.

Hatches of 80 Per Cent are the Rule

AT THE end of the fourth year our laying flock had increased to 400, and 20 cock birds besides 200 yearling hens were sold during the year. Our equipment then had increased to include five colony coops, each 5x10 feet; four houses, 14x14 feet, that may be used as brooder or laying houses; one house, 14x50 feet; two brooder stoves; one sanitary hover and ten fireless brooders and drinking fountains, mash hoppers and poultry-house furnishings sufficient to accommodate both layers and young stock.

During the past season—our fifth year—the incubators were started February 4th with eggs testing 91 per cent fertile. I got a hatch of 80 per cent of the fertile eggs and bought 400 baby chicks to put with them. The incubators were at once refilled with eggs testing 95 per cent fertile, and an 82 per cent hatch was secured. With these we put 200 baby chicks, purchased, and both lots were kept under stove brooders in the same house but separated by wire netting. When let outdoors at ten days old, each lot had a separate yard. At that time there was snow on the ground, so we shoveled away the snow and the chicks were so vigorous they did not mind the cold. Later (March 21st) a heavy snow fell, but the chicks ran through it and back to their warm hovers without harm.

To prevent cannibalism among our chicks, we buy tough lean meat about twice a week and tie strips of it where the chicks can peck and tear at it to their hearts' content. As soon as the chicks are satisfied the meat is removed before it spoils.

All our broilers, and mature stock as well, are shipped alive to a New York City commission house. Our eggs are all shipped to the same house. Broilers are shipped in crates slatted on all sides except the bottom. A quart of grain is put into each shipping crate for the birds en route.

We find it costs from 60 to 65 cents to raise a Leghorn pullet to laying age, with all its feed purchased except a part of the green feed. The net income per hen has ranged from \$1.50 to \$2 from all sources, counting nothing for labor, interest, or depreciation of equipment. One year, however, our income was only 75 cents a hen. That year roup developed in one of my best laying pens of pullets and the disease spread to an adjoining pen of 80 pullets. We lost only eight birds from this disease, but the pullets never came back to normal laying, and all were disposed of the following fall. The following spring the red mites got the start of us among the young chicks and set them back considerably. That year, also, eggs were considerably lower than the average. But on the whole, the income from that unfavorable year was better than I expected it to be.

We have an arrangement with a neighboring farmer who buys all our poultry manure for \$12 a ton. Returns from the droppings last year were \$89.50. The manure sold is taken from the dropping boards. In addition there is a large quantity of floor litter and yard manure sufficient for garden and fruit fertilizer.

We might, perhaps, get a greater profit had we more land for range, but that is an open question. I sometimes think what we save by having almost no losses from hawks, crows, and cats makes up for any advantage that would come from more land for range.

In the fall all the yards are plowed up and seeded to rye or wheat, which answers for green feed, in part, the following spring. During the winter we ship eggs and poultry to a New York commission house, and during the remainder of the year eggs and broilers are sold wherever the best returns can be secured.

My egg account for 1916 shows the following prices received. The average of the prices for each month is given: January, 37 cents; February, 37 cents; March, 27½ cents; April, 25½ cents; May, 25½ cents; June, 30 cents; July, 35 cents; August, 42 cents; September, 49 cents; October, 55 cents; November, 72 cents; December, 65 cents. The December price dropped to 55 cents at one time as a result of egg-boycotting, brought about by marketing organizations composed of New York City housewives.



Incubators and stove-heated brooders bring the chicks from the shell and safely through the feathering stage

Raising Capons for Market

Will the Unsexing of Cockerels Return the Grower a Profit?

By W. G. RHINE



Good specimens of Light Brahma capons. They run together as contentedly as pullets, and fatten more quickly than cockerels of same age

FOR a number of years I have been a strong champion of the capon. Juicy, fancy-flavored capon flesh is coming into high favor among diners who are willing to pay the price for this poultry delicacy. The number of capons marketed each year is slowly but steadily growing larger. Others in common with myself have found that the knack of caponizing is not at all difficult to learn if the beginner first experiments a little with freshly killed young cockerels. Some poultrymen who are caponizing every year say that their losses from caponizing average but little higher than that usually resulting from the castration of other animals. That is a stronger statement than I am prepared to make at present. But birds that are killed as a result of an unsuccessful operation are perfectly good for food.

It is fortunate that the required caponizing outfit is inexpensive. All I find necessary is a sharp knife, operating table (a barrel answers the purpose well), a probe, a spreader, and forceps. These may all be secured from hardware dealers, poultry-supply houses, or mail-order houses.

The proper time to perform the operation is just as the comb starts to grow. I find it important to have the birds fasted for thirty-six to forty-eight hours before caponizing, which makes the operation easier and less dangerous.

Here is my plan of caponizing: Lay the bird on its side on the operating table with wings and legs fastened securely. Remove a few feathers from the space just in front of the thigh and moisten the feathers surrounding this bare space. Next locate the last two ribs with the finger and pull the skin as far back over the hip as possible. Make an incision about one-half inch long between the last two ribs. Insert the spreaders and spread the opening as far as possible without tearing the flesh. Enlarge the incision if necessary until the spreaders may be opened to their limit. With the probe pull away the membrane, push aside the intestines, and then the organs to be removed may be seen. They are located just below the kidneys and are of a cream color and about the size of a small bean at the correct caponizing stage.

The organ on the under side should be removed first. Catch it in the forceps, taking great care not to grasp the blood vessel or surrounding tissue. If the blood vessel is broken the chicken bleeds to death within a minute or so. After the organ is caught in the forceps it should be twisted around a few times and pulled out quickly. The organ on the upper side should be removed in the same manner. After the operation, the spreaders should be removed and the skin allowed to cover the opening.

Feed Capons Soft Feed at First

I KEEP the capons by themselves and feed them on soft feed for three or four days following the operation, after which they are fed on their regular feed, and eight or nine days later are put out with the other chickens.

After caponizing, the birds do not crow, their combs stop growing, and their tail feathers grow long and silky. The meat remains soft and appetizing. I find that the capon will make a greater gain on less feed than a cockerel, and the price averages from three to six cents above cockerels in favorable markets. The best breeds for caponizing, according to my experience, are the Light Brahma, the Plymouth Rock, Rhode Island Red, White Wyandotte, Cornish, and Houdan. Contrary to the general opinion, I find that capons seldom grow to be much over one to two pounds heavier than fully developed cock birds—when fat—of the same breed. The average weight for fully matured live capons runs as follows: Brahma, 13 to 15 pounds; Plymouth Rock, 9 to 13 pounds; Rhode Island Red and Wyandotte, 7 to 9 pounds; Houdan, 8 to 10 pounds; and Dorking, 8 to 10 pounds.

It is the quality of the meat rather than the increase in the weight that makes the capons bring a higher price on the market. Capons should be fed on nourishing but not fattening food until mature.

E.W.

After maturity, feed generously with fattening food until in best condition for marketing. For the larger breeds plenty of time for growth should be allowed before fattening.

We hear much about the use of capons for foster mothers, but there is a wide difference of opinion among those who have made use of capons for breeding chicks. Here are the views of a poultryman whose experience disagrees quite radically from my own. In 1915 one of his capons was given two dozen incubator chicks and was allowed to raise them under free range conditions. There were plenty of crows, hawks, rats, and other vermin making trouble with his chicks brooded with hens, but the capon brought its entire brood up to maturity without loss of a chick.

Capons Make Good Foster Mothers

THIS poultryman declares that the case he cites is not an unusual one. Under similar conditions, for four years, he has met with a surprisingly small loss of chicks brooded by capons. His capons will take their broods into a large cornfield in the morning and remain until feeding time at noon, after which they will return to the cornfield until night. When his capons are brooding chicks, their vigilance is constant and they will warn the chicks of danger with a more far-reaching note than a hen would.

This poultryman has found that the capon's discipline of its brood is much superior to that of hens, as they will chastise the chicks when they are out of order with much more severity, although they have never been known to kill a chick when correcting them. The advantage of this discipline is that the chicks hold together when on range much better, and are kept under the control of the capon so that they do not straggle away into danger. These chick-brooding capons adopt a regular program, and will retire to a shady, comfortable place for rest and drink at about certain times each day, then go off with their charges for another foray. The chicks are held together by the capon until they weigh four or five pounds and are able to take care of themselves.

The principal advantage of the capon for chick-brooding is that it is more quiet in its movements, which gives the chicks when small a better chance to get out of the way, and when it comes to a fight in

defense of the chicks it has been found that the capon will fight valiantly even though it will fail to fight with the uncaponized males of its own kind.

Another corn-belt poultryman who has been caponizing his cockerels for six years gave me his experience as follows: "I find caponizing my cockerels to be the most profitable part of my chicken business, as there is never enough to go around. I count that my capons will bring me just about double the income that I can get for an equal weight of hens to be sold in the same market."

"I am raising Barred Rocks, and my local market for poultry is not good, so I ship nearly all of our poultry to Kansas City, Missouri. The average weight of our capons last year was 10 pounds at nine months old. We operated on 130 birds, and had only three 'slips' among that number. We used some of these capons for our home table and kept some of the younger ones for brooding this year's incubator chicks. The hundred capons sold returned us almost exactly \$200 when sold to a commission company."

The Farm on Paper

By LEO MATTHEWS

AFTER reading the editorial on "Public Architects" in FARM AND FIRESIDE I concluded to give some of my own experiences and observations along that line. I previously served several years as a draftsman and am now a farmer. I would no more think of trying to run my farm without a drawing board and a T square than I would without a plow. Whether it is a barn, chicken house, or a little self-feeder that I intend to construct, I make a correct drawing of it first. You will save lots of time, labor, and lumber.

There are men who think they can remember all the little details of building, only to find they have run a flue through the middle of an up-stairs bedroom, or something else as bad. I know of a case where a woman attempted to build a house without plans, and as a result one of her front windows was only ten inches wide.

I always advise a man to consult an architect in case he is going to build a large house or barn. He should also work with the architect to be sure that the plans are just as he wants them.

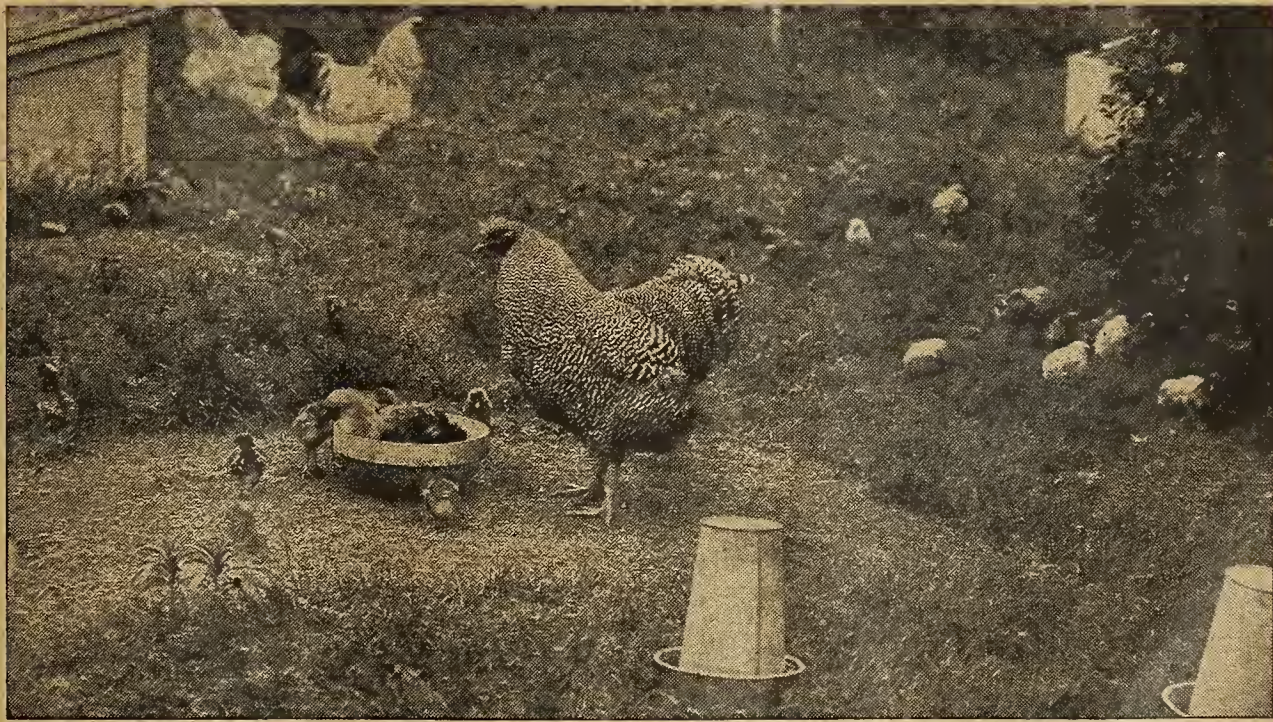
Two dollars will buy all the necessary items for a drafting outfit sufficient to draw any building plan. These items are: A drawing board, a T square, a triangle, a scale, and a pencil. A common ruler of good quality may be substituted for the scale, and is probably less confusing to use.

Of course, if you desire to put the plans in permanent form it is well to go over the pencil lines in ink; but with a little practice and caution this can be done with an ordinary pen, taking care that the pen point does not come into contact with the straight edge, else it will cause a blot.

Building plans are usually drawn on a scale of one-fourth inch to one foot, which means that every quarter of an inch on the plan represents one foot of the actual building. This proportion is not a hard and fast rule, however, since smaller subjects are drawn one-half inch or one inch to the foot, or sometimes even full size. It is a good plan for the novice to draw his plans as large as possible. In drawing the plans for a frame building it is essential to know that outside dimensions are given on the studding line and no consideration is given to the outer wall covering. Partitions are located by their centers.

It is a good idea for a prospective builder of a house, barn, hog house, or chicken house to send and get all available printed matter on the subject at hand and study it carefully. This will not only give him ideas on the subject, but some of the plans may fit his requirements.

I do not expect that these suggestions will make anyone a complete draftsman, but I should like to impress upon those who are careless the advantages of planning on paper. Every owner of a farm should have a plan of it, showing the location of all fences, buildings, drain tiles, and fruit trees. Then during these winter evenings he can sit in his easy chair and with this paper farm before him plan his spring work or reconstruct fences in a way that will eventually result in more returns and a better farm.



Capons, while heavy and sometimes clumsy when full-grown, make less trouble than nervous hens in brooding chicks and make vigilant foster mothers

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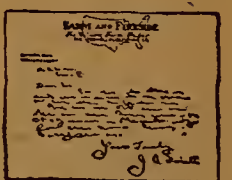
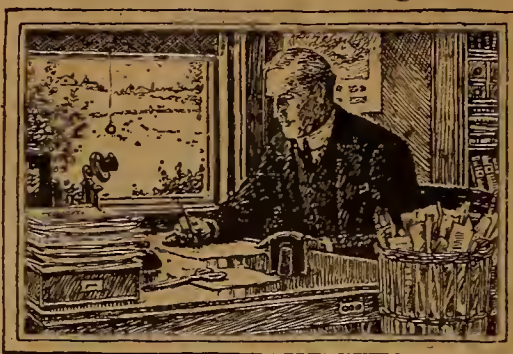
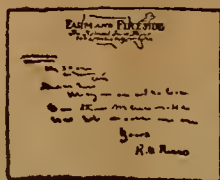
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The Editor's Letter

Words of Cheer on the Subject of Debt



I HAVE just read in this morning's paper the sad account of an attempt at suicide. The doctor says the man may live, and I hope so, for he is an acquaintance of mine and he has a wife and four children who need him. Poor fellow, he is just in his prime—only forty-two—when a man can do so much with his life.

The reason for the act was financial trouble, with poor health as a contributing cause, and that is why I want to say a few words on the subject of debt, which so often brings worry and finally ill health and despondency. The ordinary debt contracted for a useful or needful purpose is looked upon in the business world as an important instrument of progress. And yet I know that even when the fundamentals of credit are explained to some people, they can see only their personal side of the matter, which is a dread of getting into debt if they are out of it, and an eagerness to get out if they are in it. Sensitive people, inexperienced in money matters, lie awake nights worrying over small and legitimate debts to which their creditors give scarcely a thought.

Let us see what we can learn from the example of a Wisconsin dairyman who is a reader of FARM AND FIRESIDE and has written a brief account of the methods which helped him to succeed. "In the spring of 1906," he says, "we traded our country store for a farm of 100 acres. We did not know a great deal about farming at the time, but did the best we could under the circumstances, and made a pretty good showing on a run-down farm for the first year.

"The second year the barn was destroyed by a windstorm, and as we carried no storm insurance at the time, it was rather a heavy loss to us. But we rebuilt it the same year, doing a lot of the work ourselves. Yet it put us rather heavily in debt, as the farm had not been fully paid for. For several years following this we had a hard time to make the interest and a living, but we put all our efforts into dairying, and in the fall of 1912 built a silo.

"This enabled us to keep a larger number of cows and greatly increased our income. Last year we built another silo, bought a 12-horsepower gasoline engine, silo filler, and a number of other machines. By the end of this year everything will be paid for with the exception of a \$5,000 mortgage, which will be a very easy matter to handle. We have now a good equipment of machinery and buildings, a dairy herd of fifteen cows, five heifers, six calves, and a pure-bred bull. We also have a nice bunch of hogs and poultry to insure a good yearly income with which we can meet incidental bills as they come."

HERE is a man who started with a run-down farm, little practical experience, and a debt. And in spite of some early mistakes he now has an improved and liberally stocked farm—and still a debt. If his mind had run to small ideas he would have first paid off his debt, gone without his silos and machinery, and would now be struggling along with inadequate equipment, probably running a two- or three-cow dairy. Some men, perhaps most men, would be happier with such an outfit and without the \$5,000 mortgage. But I respect this dairyman—and I think you do too—for his faith in himself and his judgment for going ahead in a man-size way, getting what he needed and then letting the mortgage take care of itself.

The holder of the mortgage has nothing to worry about, and would probably rather have it run than be paid off. That it doesn't worry our subscriber is shown by his offhand reference to the mortgage, "which will be a very easy matter to handle."

When money matters are involved, I am afraid most of us put too high a valuation on property and commercial articles and too low an estimate on the human factor. Aside from the priceless asset of a keen mind, do you know what a human being is worth commercially? Someone has figured that it costs about

\$250 a year to bring up a child, which would make the average person at the age of 21 worth about \$5,000. This

amount is also a common indemnity paid by accident insurance companies, so \$5,000 is a fairly accurate appraisal of the average able-bodied American citizen.

"But I can't cash in on that," someone says.

Of course you can. I have in mind a young man who wanted to go to the state agricultural college. He had no money, but knew something about personal credit and wasn't afraid of debt. First he found a friend who had a thousand dollars to invest. Then he took out a thousand dollars' worth of life insurance, which cost him about \$22 a year, made his friend the beneficiary, and turned the policy over to him as collateral in exchange for the \$1,000 cash.

Four years later this young man graduated from college with honors. Soon after, he paid back the \$1,000 with six per cent compound interest, married, had the policy changed to make his wife the beneficiary, as she should be, and is now considered prosperous.

BUT there are other profitable uses to which a debt can be put in addition to farm equipment and an education. One may wisely go into debt to bring back lost health. One may also borrow a reasonable and not too burdensome amount for home comforts and modest pleasures.

On the subject of creature comforts a West Virginia reader has some opinions which contain so much sound philosophy I want you to read them.

"The cost of medicine," he says, is very small, but it may save your life. We can go through life on a bobsled or astraddle an old blind horse, or sit and mope and snuff ashes in the chimney corner, but what is that worth? It does not cost much, but the returns are worse than nothing. We are not placed in this world to see how cheaply we can get through life but to see how much good we can put into life for the general good, to enjoy life and to show that it is worth living. Nothing is of worth merely of itself, but the value consists in what it can, will, and does do.

"A horse! A horse! My kingdom for a horse!" cried King Richard III when afoot on the battlefield. So the automobile, which some may consider a luxury, may in a crisis save your life or the life of some loved one. Pleasures, conveniences, and business performances are greatly magnified and multiplied. You can skim the valleys, climb the mountains, fill yourself with the glories of nature. Such an increase of pleasures, of conveniences, and of business transactions cannot be estimated in dollars and cents, but in the worth of a life lived."

Our West Virginia reader, I am sure, would make a very good automobile salesman. But when I started to talk about debt this is the message I wanted to leave, and the two letters have helped to illustrate the point:

A debt is a perfectly justifiable, respectable, and legal means of reaching a desired goal. It is an instrument of business just as a plow is an instrument of agriculture. It is an indication of responsibility and integrity, for irresponsible people cannot get the credit to incur a debt. A debt is not to be regarded with impunity, for it is the use of another's money given in trust. But worry and despondency are unavailing.

Going into debt for a piece of property or an article of value and then gradually paying it off gives you the use of the property in the meantime, and is an excellent means of saving money.

Let us try to overcome the fear of debt and the prejudice against it, for when not allowed to become master it is an excellent servant. Working side by side with personal industry, it helps us to get happiness, comforts, and many other things in life worth while.

The Editor



Unloading Hay at Oakland Farm—Wayne, Illinois

Strong Enough for Any Service

The tire that needs to be pampered has no place in country service.

It may do fairly well in town, where garages and repair shops are numerous and accessible; but for main road travel, where distances are long and conditions severe—where "trouble" is trouble with a vengeance—it is an inevitable disappointment.

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Goodyear Tires are the natural outcome of a manufacturing policy that refuses recognition to any quality save the highest, of a craftsmanship satisfied with nothing less than all possible perfection, of an institutional principle based on value given for value received.

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of intention and effort behind them—and more of them are in use today on the motor cars of America than of any other brand.

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THE NATIONAL FARM PAPER

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February 3, 1917

Measuring Success

MONEY is a poor measure of men, an unsatisfactory standard of success. It may be as false as a 30-inch yardstick, a 7-quart peck, or an 11-ounce pound. It may cause the most selfish farmer, one who is in fact a failure, to be looked upon as a notable success. So it is unfortunate that there is no generally accepted standard by which agricultural worth and success may be reduced to and reckoned in easily understood terms of value.

It is exceedingly difficult adequately to measure or gauge country-life values. On the other hand, it is easy to estimate, in terms generally understood, the number of acres in a field, or to arrive at the weight of a fat steer or hog. Furthermore, who is there who would presume to measure the worth of high citizenship, of community leadership, or to reduce to terms of dollars and cents the glory of shade trees, the beauty of valley and hill and prairie, or of the wild flowers of springtime and autumn?

For the discouraged man or woman on the farm, those whose accomplishments may not loom large when measured in money or in the generally accepted terms of efficiency and success, there may be causes for congratulation. It is not always easy to separate the dross from the gold.

Water-Works Week

ISHOULD rather be remembered by the people of the South as he who was instrumental in introducing good water systems into farm homes than to make an important scientific discovery," recently stated a member of the Department of Agriculture at Washington.

But the start toward the installation of more water systems in Southern homes already has been made. In fact, Mississippi recently devoted a whole week to the work with the avowed purpose of getting 10,000 farmers to put water works into their homes. The governor, state agricultural college, federal department of agriculture, boards of trade, manufacturers, county agents, development bureaus, clubs, and many other agencies all strove to relieve the situation outlined in Governor Bibb's proclamation in part as follows:

"Nothing contributes to the health, comfort, and well-being of the State as much as a convenient, plentiful, and sanitary water supply in the home. An exaggerated idea of the cost of putting running water in the home has heretofore been prevalent. To dispel this common mistake, and to promote the installation of simple, low-cost water works, together with a sanitary water supply throughout our rural communities, the various organizations have allied themselves and are furnishing in-

formation and plans to all interested. With more than a hundred thousand farms in Mississippi, the great majority of which do not have a satisfactory water supply, it behooves us to stop, take account of these facts, and to do what lies in our power to change these conditions. The expense of installing is small compared to the resultant benefit."

There is ample room for a successful Water-Works Week in other States, both North and South. FARM AND FIRESIDE has frequently told of the value of the farm water supply and believes many States could emulate with profit the example of Mississippi.

Those Idle Hours

WE HAVE never had very much faith in the idea that winter is a time when the average farm family hibernates around the kitchen stove. Considering the shortness of the daylight, not much time remains for leisure when the day's simplest duties are performed. There is the pump to thaw out, stock to feed, wood to carry, colts to break, children to take to and from school, supplies to get in town, snow to shovel, meals to eat, and chores again.

For those who find that time still hangs heavy on their hands, here are a few of the more standard winter time-killers modern civilization has added: Overhauling the automobile, concreting the cellar floor, making concrete fence posts indoors, sharpening all the farm and household tools, putting in modern improvements, filling the ice house, reading incubator and seed catalogues, attending farmers' week at the agricultural college, addressing the local farmers' institute, pruning the orchard, testing seed corn, hauling out the manure, starting an account system, balancing the dairy rations, laying out a system of tile drains, selecting the tractor, and writing for your farm paper. The old-fashioned man, who used to spend the winter playing checkers has a son who takes that time to send checks to his sons and daughters at college.

An "Early Bird" Plan

IN URGING fertilizer users to be forehanded this year to avoid disappointment in deliveries, The National Fertilizer Association presents a clear-cut outline of the situation. Last year American farmers used four and a half million tons of commercial fertilizer most of which was delivered by the railroads within a shipping period of eight weeks. To put it more simply, the railroads hauled and delivered more than half a million tons a week, and nobody was inconvenienced much by failure to get his fertilizer when he needed it.

But this year the country is still struggling along with a car shortage that began about October 1st with 19,000 cars, and according to the latest authentic reports there is a present shortage of 150,000 cars. Somebody will have to wait for his freight.

The fertilizer folks, along with many other business enterprises, stand a good chance of losing a part of their 1917 business if the public learns of this condition too late. But what is more important, land that needs fertilizer will give disappointing yields for lack of it, unless a substitute can be found at the last moment. One fertilizer expert suggests that the best time to lay in the year's supply of fertilizer is in the winter, when the roads are good and when the teams are relatively idle. This is the same line of thought as hauling the barnyard manure out to the field during the winter, leaving just that much more time for the field operations later.

The railroad measures now before Congress also make the situation still more uncertain. Altogether, a reasonable amount of forehandedness in laying in supplies needed for spring work seems the part of wisdom.

Less Bushels—More Money

THE Government Bureau of Crop Estimates, issued recently, comparing 1916 crop yields and values under existing prices with yields and prices for the same crops on the same dates in 1915, affords the basis for an impressive exhibit for several of the staple crops listed. A little figuring shows that, although there was a decrease of 400 million bushels of wheat in 1916, the total selling value of the crop was \$18,000,000 greater than the larger crop in 1915; notwithstanding the decrease of 400 million bushels in the corn crop, it had a value of \$350,000,000 above last year's crop; the oats crop was 300 million bushels less than in 1916, but it had a value of \$60,000,000 above the crop of 1915; similarly there was a reduction of 70,000,000 bushels in the 1916 potato crop, but the smaller production had a value of \$175,000,000 more than the larger crop of last year.

From this computation it may be seen that notwithstanding there was a total decrease of over a billion bushels in the aggregate yield of these four staple crops in 1916, the higher prices obtaining gave them a market value of over \$500,000,000 more than the larger yields of the previous year at the same date. But if the higher market prices current a short time after the government report was issued is taken as a basis of reckoning, the overplus of value would have had a market value of a billion dollars more than last year, when their combined yield was a billion bushels greater than the 1916 harvest.

Considered from another angle, how much of this billion-dollar increase in value since these crops were harvested did the producers receive as a reward for their skill and labor? Had this billion-dollar increase in the value of these four staple farm crops been realized by our six million farm owners, their average share of this advance in value would have been \$150 a farm. But those actually engaged in growing these crops in a commercial way would have had an addition to their incomes ranging from \$500 to \$1,000, or more.

The lesson in these figures is the need of better farm storage with which to take advantage of advancing crop values. When distributors are keen to get crops even before they are harvested, the farmer should be in position to store his crops and secure at least a fair share of any advance that market conditions promise.

Our Letter Box

Help Protect Bobwhite

DEAR EDITOR: I have never noticed anything in your valued paper concerning the city sportsmen and the trouble and aggravation they cause the farmers.

The quail, or bobwhite, is one of our prettiest as well as one of our most useful birds. He deserves to be called a national bird, just as much as the American eagle. Why should the farmers and landowners allow his destruction and what seems to be his eventual extermination?

Recently, in your editorial letter, you said that the farmer should go to town oftener and get more pleasure out of life. Hunting is a pleasure and recreation a farmer could have right at home on his own farm, if he could save the game from the city sportsman. Why could not the farmer when he had permitted the quail to multiply and to become a benefit and a blessing to the community have the much-needed recreation in shooting the surplus game? I think the farmers could be so organized that they could control the wandering and the wantonness of the city sportsman, and preserve bobwhite and other game.

We protect other birds (which is certainly right), so why not protect the most inspiring of them all? Many people say, "Where does the quail make any money for the farmer?" He doesn't now, because in most localities there are no quail to speak of, but if his protection were encouraged more he would increase and in a few years be of material benefit in destroying bugs, insects, and great quantities of weed seeds. This

FARM AND FIRESIDE

would certainly be a big help to farmers. The wheat and other grains which he might eat are of small account and would be wasted anyhow. Everybody admits that. Furthermore, the presence of the whistling bobwhite would lend a pleasant touch of wild life, something which sometimes affords more satisfaction than all the money in the world. C. F. EICHER, Ohio.

Aiding Sons Toward Farms

DEAR EDITOR: When my parents were young they went West, where land was cheap. After the usual pioneer trials they succeeded in raising a family of two girls and six boys, and paying for their farm with comfortable improvements. But when we boys were grown there was no more cheap land there.

Two brothers started there as renters and have twice bought the high-priced farms they were living on. To-day they are past middle age, and they are renters yet, with no better prospects in view. Two others went in business in town, own their own homes, and are in medium circumstances. Two others went where land was cheap. They are what farmers call "well fixed" now. My parents found plenty of cheap land when they were young. We found some too, but not so good.

We have seven sons and three daughters who would all rather farm than anything else. There is no more cheap land like we or our parents got. We have advised those who are old enough: "Go sell your labor where you can get the most for it for a few years. Put your habits of economy and willingness to work, learned on the farm, in practice, and as soon as you have a little ahead make a payment on a medium-priced piece of land. Keep on until you are over the worst, then we will outfit you with the necessary equipment and you can work your way through."

The two oldest boys are doing that way now. They found that they could get the most money for the least labor among the rich in our large cities where a dependable man is yet wanted and the rich people do not care what he costs. HENRY CRAMER, Virginia.

Opposes Food Embargo

DEAR EDITOR: Since the year 1899 I have been a subscriber to FARM AND FIRESIDE. The reading of your paper has been interesting, instructive, and beneficial. According to my estimation it is the broadest and most liberal publication I have ever read, always going into details when necessary. This is very essential.

We see some talk in the papers of an embargo on food products. Such an act, it seems to me, would fall heavily on the farmers. It has been many years since the farmer has been able to market his products for what was justly due him. If the middleman is receiving an unjust profit the Government ought, and I think does to some extent, investigate and see that this matter is adjusted.

If an embargo is contemplated by the authorities at Washington, we decide to appeal to you for assistance in this regard. We believe that such an act would not only be unjust to the farmer but would be destructive in a measure to that class of citizens. The farmer would be forced to take a less price for his products, while at the same time he would have to pay advance prices for whatever he has to buy.

If the working class of the cities must buy cheaper food products, the proper thing to do would be for the Government to buy these products of the farmer at the market value and then sell the same to these people at a price that would be satisfactory. This would give to the farmers all that is coming to them and at the same time supply the people who need the food products at the proper prices.

WILLIAM KELSO, Indiana.

A Boy's Decision

DEAR EDITOR: I am a boy with a fairly good grammar-school education. I live in an eastern Pennsylvania county, near a small town. I am working on a farm at \$1 a day and am living with my parents. They are both good to me. I save nearly all my money except what goes for clothing. I have a small bank account which is steadily growing. I do not intend to learn a trade, but want to be a farmer.

These are the reasons I like the farm: First, because of the pure air; second, because I believe that a man who owns a farm can be independent; and third, because I believe he can save money as well at farming as he can at a trade. He raises a lot of his own vegetables, fruit, meat, and other things, and gets his wood free. I am therefore a thorough believer in farming.

L. SHERIDAN, Pennsylvania.

EW

Comments on "Pork Products"

DEAR EDITOR: Your article on "Pork Products" was carefully read, and in the main I agree with the writer. We use the brine method of curing, but we long since have stopped the use of salt-peter, as it colors the meat a pinkish shade that we do not like.

Our brine is made of salt and molasses; the latter we prefer to sugar. Canvassing the meat is entirely unnecessary. After our meat is smoked we dust the flesh parts with borax, and no flies or bugs will touch it. The remedy is cheap; one pound will treat the meat of five or six hogs, and in no way affects the taste of the meat, as all is trimmed before cooking.

Meat should be kept in a dry place to prevent molding, but should not be kept where it will get hot enough to drip, as the meat may become strong and off flavor. We would not think of using the dry-curing process on account of the labor to execute it. The brine method is simple, easily done, and we find it suits our taste and also the taste of our city friends who prefer a good slice of well-cured ham to chicken.

C. H. McCORMICK, Ohio.

Four Fine F's

DEAR EDITOR: There are four F's in which I am specially interested—farm, fruit, fowls, and flowers. The farm—of course that means home. We have been married not quite five years, and we didn't have our team all paid for when we went to housekeeping.

My husband bought an old wagon without a bed, bought a cow on time, and what little furniture we had to have, and we started a home.

Now we have 40 acres, a nice team of mules, hogs, chickens, and a cow, and not such an amount to pay off either. Which goes to show that a man with energy, willingness, and brains can achieve most anything he desires; provided, of course, the woman does her share. My spoon saves what his shovel brings in. One can save a farm almost as quickly as one can earn it.

Now for the fruit. I never lived on a farm before I was married, and never canned any fruit in my life. But he can who thinks he can can, and although this has been a lean year, we have a hundred cans of tomatoes, besides peaches, pickles, ketchup, watermelons, preserves, Chili sauce, green peppers, and a few other things. We have a nice small orchard here, and the Boss has set out more trees and got a small order filled yesterday. Our peaches were wormy this year, as they were not sprayed, and the pears didn't amount to much, as they were so young; but we had a nice little crop of grapes, and hope to have more fruit next year. It should be the standby of every farmer's table.

And the fowls. Having just moved here this year we have only a few chickens, but those few are my pride, and next year, with the help of an incubator, I shall keep all that Hubby can feed. They in turn will feed us while the ducks will give us a soft, downy bed.

Last, but not least, come the flowers. What can make a home more cheerful than the good old-fashioned flowers? They need not be the choicest or the rarest; some of the commonest are the prettiest. The crocus, tulip, roses—especially the rose that blooms every month—and the sweet honeysuckle are the best for the farm garden.

MRS. F. J. MARZ, Missouri.

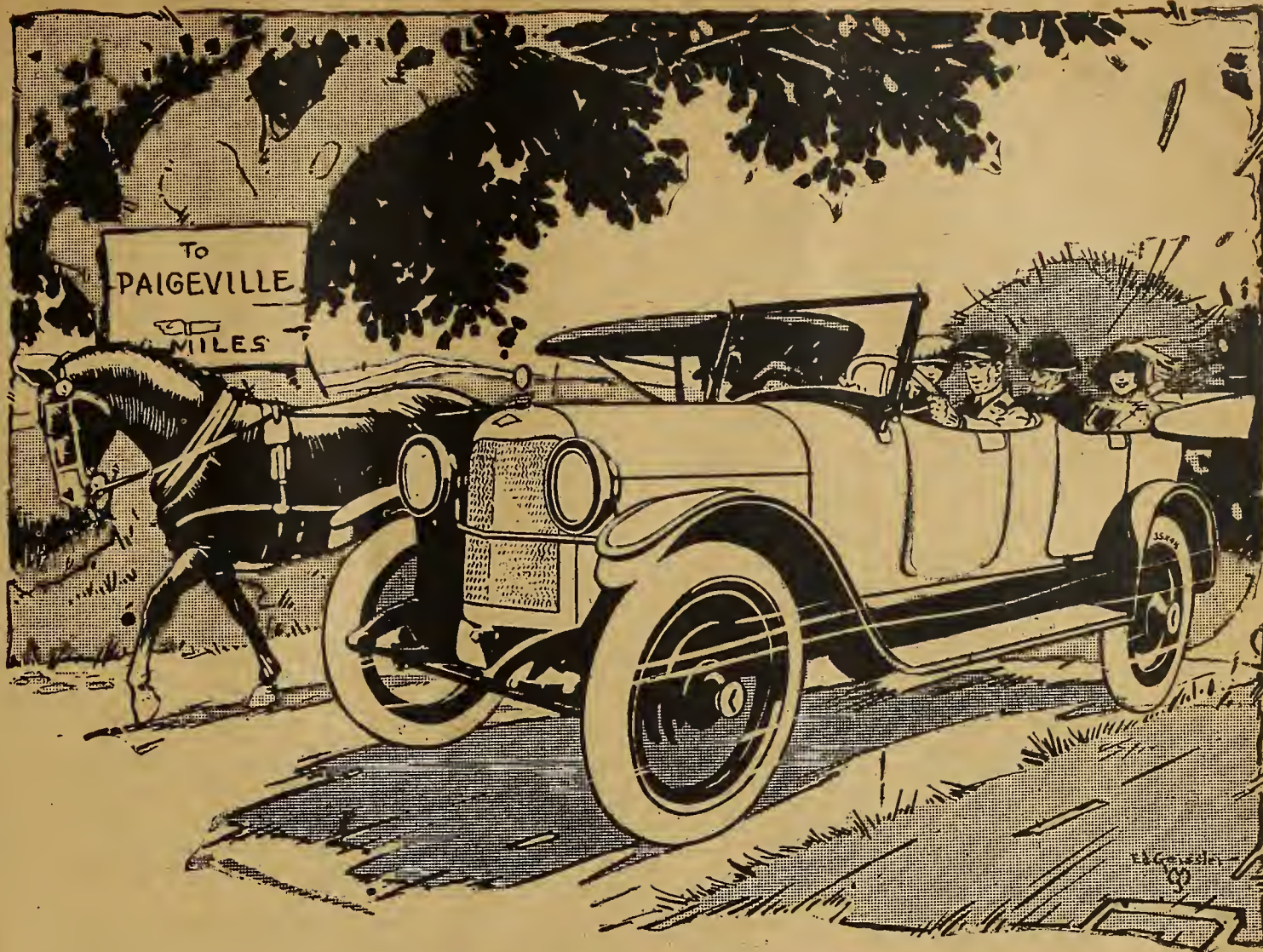
Another Close Call

DEAR EDITOR: I was one of a number of section hands who went out on a construction train to unload a lot of flat cars loaded with ballast. When the unloaded train was backing up to the station through a deep cut, one of the men came to get a drink of water. The water pail was in the end of the car, and just as he got it he cried out: "The pusher, boys!" and ran to the other end of the car.

I had only been a few weeks in the country and did not understand what the pusher was, so I took a look out at the window and there was the switch engine coming toward us at a high speed. I made for the side door of the car and before I reached the ground the engine had stove in the end of the way car and was sending the hissing steam through the car, some of the steam striking my back. I jumped from the car.

One man was in the same end of the car as I was, and was cooked. At the other end of the way car, a flat car jumped up and came through the way car to the side door, sending all the men in that end of the car ahead of it through the partition. The conductor was keeping a lookout at the side window, and went out head first—we two being the only persons saved.

JOHN SIMPSON, Kansas.



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Land Clearing

Combination Methods Give Best Results

By THOMAS CUNNINGHAM

MUCH has been said and written on the subject of land-clearing and still it remains an arduous task. To get down to hard facts: There is on each acre of land a given quantity of wood to extract from the ground, and burn. There is also a given quantity of soil to handle in grading and leveling the ground to make it suitable for farm implements to work on. All of this work requires power to accomplish, whether it be machine power, horse power, manual labor, or explosive powders. We cannot get away from these facts.

Burning stumps in the ground has been advocated and experimented with in several ways, the principal ones being the charpit method, the forced-draft method, and the air-tight dome method. None of these methods have proved to be practical. The charpit method requires too much preparation in the way of gathering sufficient small wood to give the fire a proper start, and also in banking with dirt. Again, all soils are not suitable for use in banking with dirt. There must be sufficient clay in the soil to allow it to bake, otherwise it will fall in and smother the fire. Also, it is only in the very dry and resinous stumps that fire will follow the roots below plow depth.

The air-tight dome method is similar to the charpit method, except that instead of banking with dirt an air-tight dome made of sheet metal is placed over the stump. This is a very slow method unless a person has a number of air-tight domes, which make it very expensive.

Destroying by chemicals has been advocated at various times. A hole is bored in the stump and equal portions of nitric acid and sulphuric acid are poured in. Then the opening is tightly plugged. It has been claimed that this method will destroy a stump in the course of two or three months, but I understand the U. S. Department of Agriculture has investigated this method and met with no success.

Digging stumps out by manual labor is too slow and costly to be even considered.

In an experience gained by clearing some four hundred acres of land I have come to the conclusion that the only practical way to clear land is to pull out the smaller stumps whole. Then blast the larger stumps, and pull out the remaining portions and burn.

In preparing to blast a stump, good judgment must be used in placing the powder. Dig well under the body of the stump, taking care to have the powder placed under the point of greatest resistance. Care should be exercised in digging to a good depth, leaving a foot to eighteen inches of soil between the powder and the body of the stump. This permits of the charge being more firmly tamped and, in case the center of the stump is weak, it distributes the energy created by the explosion of the powder more evenly over the root system and prevents breaking of roots in the ground.

Another very helpful plan in blasting is to wind a piece of old wire cable around the top of the stump before blasting. This holds the top of the stump together and gives a cleaner upward lift instead of that outward throw which has a tendency to break off the more deeply bedded roots. Use stumping powder, which is manufactured by all responsible powder manufacturers. This powder has a much greater lifting power than dynamite. Full printed directions for use accompany each case.

You cannot have too great respect for powder, but with careful and intelligent handling it is quite safe.

The Outfits Compared

Stump pullers are divided into several classes, gasoline stumping outfits, steam donkey logging engines, horse-power stumping machines, and hand-power stumping machines.

Gasoline and steam donkey outfits have their use in sections where labor is not easily procurable, but I consider them costly. Their bulk and weight also make their transportation from one point to another expensive. The operating gangs of such outfits are high-priced men, commanding all the way from \$4 to \$8 a day. The cost of upkeep in the way of cables, blocks, etc., is also very high.

This is caused by the fact that the haulage rope on these engines travel at a given rate of speed and when the power is suddenly applied to a heavy inert mass, such as a stump, the sudden jerk places a tremendous strain on

ropes and blocks, causing many breakages and delays. Theoretically, there is no necessity for a sudden jerk with these engines, as they are supplied with a friction gear, but did you ever watch the sudden slam and then the quiver of the suddenly tightening rope on a donkey engine?

A hand-power stumping machine weighs about 170 pounds, and can be wheeled around like a barn truck. It is built on the double-action pawl and ratchet principle. I heard about this machine last fall and traveled twenty miles to see it, very skeptical as to the stories I had heard about it. The agent attached it to a standing tree (fir) about 36 inches in diameter, placing the cable about 12 feet up the tree. I took hold of the lever and pulled the tree down myself in eight minutes. I bought the machine on the spot, and have pulled the stumps from 30 acres of land with it since, the machine costing not one cent for repairs. Very recently I gave a demonstration on stump-pulling to the members of the Royal Commission on Agriculture, appointed by the Government of British Columbia. In this demonstration I attached a stump puller to a fir stump about 20 inches in diameter. This stump was on an open gravelly soil and the roots penetrated quite deep.

To Prevent Large Holes

I pulled it out quite easily in seven and one-half minutes, the roots being pulled out clean and clear. While pulling the stump (as is my usual custom) I kept a man with a mattock knocking the dirt from the roots as the stump was raised, and allowing it to fall back into the hole made by lifting of the stump. By doing this the ground is left nearly level and requires very little grading afterwards. The slow traveling movement of the pulling cable also allows time for the roots to worm themselves clear of the soil, thus making a clean extraction of all roots.

Briefly speaking, the method I find most satisfactory in land-clearing is, first, to clear off all underbrush or second growth. Next, remove all valuable logs and dispose of them. Then pile and burn all valueless logs. Next pull out whole all stumps up to about 20 or 22 inches in diameter, always keeping a man knocking the soil off the roots as the stump is being pulled.

Then blast the larger stumps, using the precautions before mentioned. Pull out any remaining roots. Then pile and burn and the land is ready for rock-picking and plowing.

Porch Floor Repairs

By W. E. Curley

A WOODEN porch floor always begins to decay at the outside edge where the weather hits it hardest. Here and there a floor board will rot, but rarely two together, and the decay seldom reaches back the full length of the board. Usually not more than the outside two feet are unsound.

First locate the joist at which you wish to make the joint, between the sound part of the old floor board and the new piece. If you can get under the porch you can drive a small nail through and the position of the joist can be determined by measurement from the nail. If this method cannot be followed, try sounding. The blow of the hammer will give out a hollow sound when struck on the floor between joists and a solid sound when the floor is struck over a joist. If not quite certain, you can drive a few small finishing nails through the floor at short intervals until you locate the place.

To cut off the end of the decayed board, use a half-inch chisel. It is difficult to make a cut across grain with a wider chisel. When the cut is made, split out with hatchet or chisel the part that is to be replaced, being careful not to injure the tongue or groove of the piece on each side. Take the new material, which should match the old floor, cut the end square, paint both edges as well as the ends which are to fit together, and drive it in place. Its tongue and groove should fit into the tongue and groove of the piece on each side.

When it is driven up tight, cut off on a line with porch. Nail in place, using two finishing nails at each joist, and sinking heads. The paint serves two purposes: First as a lubricant, allowing board to drive in more easily; and, second, it prevents water from working through the floor.

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Automobiles

Alcohol Boils Away

By B. D. Stockwell

"I AM using denatured alcohol in the radiator of my car at the rate of one gallon of alcohol to three of water. But on a mild day it boils away, although the radiator doesn't seem to get very hot. What is the matter?"

The reader who asks this question does not describe the condition of his engine or his experience in driving, but this apparently is the first winter he has driven a car. Alcohol boils at a lower temperature than water, and some steaming at the radiator is to be expected. Furthermore, most drivers fail to advance their spark as far as advisable, and consequently cause their motors to run hotter than necessary.

The remedy is, first, to see that the fan belt is not slipping; second, to drive with an advanced spark; and, lastly, to use somewhat less alcohol. Before a very cold night run the engine a few minutes to warm up the radiator slightly, and then cover with a blanket. This practice is sometimes more economical than using the full strength of alcohol recommended for midwinter. But, in any case, remember that a few quarts of alcohol are less expensive than the cost of repairing a bursted radiator or buying a new one.

Easy Starting in Winter

By W. V. Relma

AS THE heart of winter approaches, the motorist must begin to exercise greater care with his car. Frequently this realization is brought about by a sudden drop in the temperature and the greater difficulty of starting.

It is useless to crank and crank up a car either with a self-starter or by hand to make it start. The motor will not start until it has the proper conditions for starting. Therefore it is well to begin by seeing that the motor has the best possible conditions for starting.

The carbon should be removed from the motor, and valves ground. This will put the compression at its best, and correct any fault along that line.

Next the electrical equipment should be examined. All oil-soaked or otherwise defective appearing wires should be replaced with new ones. The contact points of the magneto, or ignition system, should be examined and put in perfect condition both as to the condition of the points and also as to proper spacing. These things may prevent frozen fingers later in the winter.

The proper kind of oil should be used for winter use. Most cars will use to advantage a much lighter oil in winter than in summer. This should be determined by experiment or by the advice of some good mechanic. Let the spark plugs receive next attention. Of course plugs should be used which will operate perfectly in your motor. This may sound obvious, but it does not depend upon installing the highest priced plug on the market. One day I ran across a car equipped with plugs that sold at \$1.50 apiece which were in perfect

condition, yet the motor did not run evenly. Several experiments were tried, and finally a new set of plugs of a different make were installed, after which the motor operated perfectly. The new plugs cost about half as much as the others.

After all the mechanical points of the motor have been checked up, it will be necessary then to see that a good gasoline starting mixture is always ready. The carburetor and gasoline line must be free from dirt and water. These parts should be removed and cleaned. A taxi driver of my acquaintance had the gasoline line of his car freeze up last winter.

If the ordinary rich mixture your carburetor furnishes is not enough for easy starting, it will probably be desirable to install some sort of priming device upon the dash with a pipe line to the manifold. This may consist of a small tank provided with a cut-off cock, and may be filled with ordinary gasoline, or high-test gasoline, which usually tests 76 degrees and costs considerably more than ordinary "gas."

A mixture of ether and gasoline in a proportion of one to four may also be used. These same priming fluids can be used in the motor priming cocks if desired. If your motor is not equipped with priming cocks, it may be desirable to equip it with priming spark plugs. These are spark plugs with a priming cup attached. This sort of plug deposits the starting mixture right at the plug points, and usually the motor starts very easily.

Stopping After a Blow-Out

"SHOULD a blow-out in an old casing tear the inner tube?" a reader asks. "I had a blow-out on the right rear tire and the inner tube was torn in several places."

The damage described could not have been caused by the blow-out, but was in all probability due to the sudden application of the brakes after the blow-out occurred. When a blow-out takes place in a rear tire, shut off the power and bring the car to a stop very slowly. If brakes must be used, apply them gently.

I am quite aware of the customary advice not to run the car on a deflated tire, but that is less injurious for a distance of seven or eight rods than to set the brakes when the tire is flat and perhaps drag it on the road when it is in no condition to resist the strain. Sudden stopping probably caused the torn tube mentioned above.

Trucks and Blizzards

ENGINE troubles and difficulties of starting in cold weather formerly caused motorists to put their cars away for the winter. But improvements in design and more efficient carburetors have largely done away with such difficulties, so that now the only serious barrier is the condition of roads in the early spring during alternate freezings and thawings.

The operation of automobiles and motor trucks in deep snow was strikingly demonstrated in Cleveland, Ohio, a few years ago during a three-day blizzard which buried the city under 22 inches of snow on the level, with drifts five feet high in some of the principal streets. When the milk trains were stalled in the suburbs, a fleet of motor trucks bucked the drifts till they reached the trains and then hauled the milk back to the hungry population.

Powerful touring cars also made their way through the snow, but persons depending on the usual deliveries of meats and vegetables were finally obliged to take a market basket and wade through the snow to the stores.



When the milk trains were stalled on the outskirts of the city, motor trucks went out to meet them, thus preventing a milk famine

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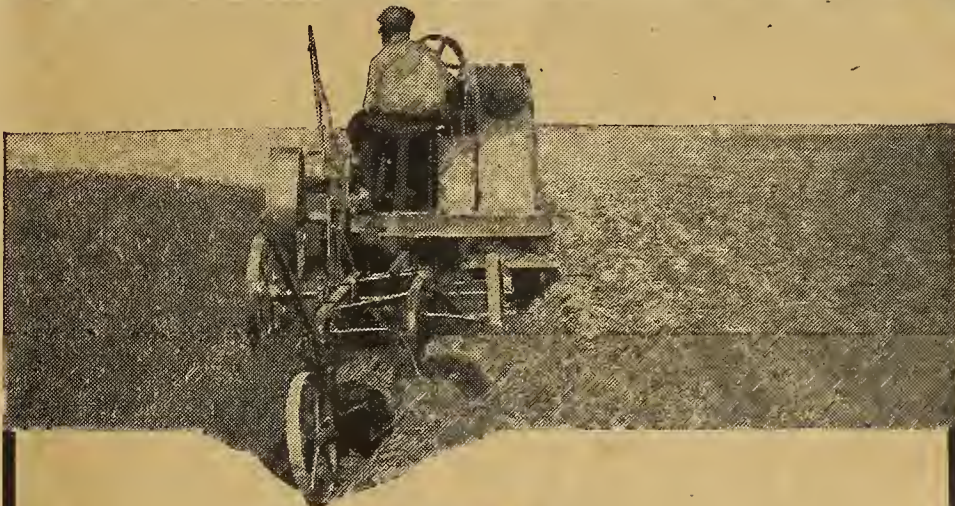
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In addition to the way in which an Oliver tractor plow will enable you to do more and better plowing, there is another way of increasing your crop yield.

Weeds result in a great waste each year. The Oliver combined rolling coulters and jointer is a valuable means in reducing the weed crop by burying all seeds on the bottom of the furrow where they are slow in sprouting. This device is also necessary for doing the best kind of plowing.

Delays in your Spring plowing can be avoided by placing your order at once. A card will bring you full information.

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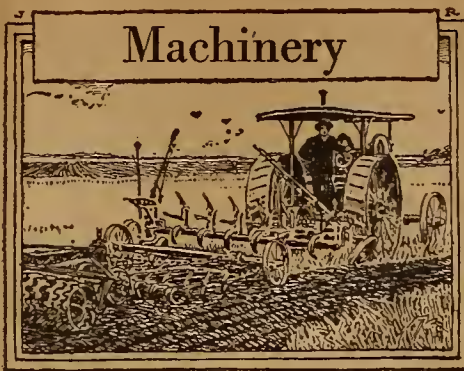
Weights 5000 lbs. and develops 3000 lbs. draw-bar pull and 4000 lbs. on low gear. Pulls 3 plows under adverse conditions—4 plows under favorable conditions—barns kerosene. Rans 18-in. Ensilage Cutter and 28-in. Separator. Pulls an 8-foot Road Grader.

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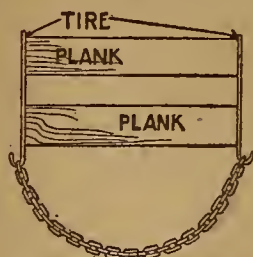
ALLWORK ALWAYS

Machinery



Stalk Leveler Quickly Made

By Fred Schwanebeck



TO MAKE a stalk leveler that is simple as well as effective, take two pieces of plank six feet long (or more) and fasten them with an old wagon tire as illustrated.

Have holes drilled in the tire to receive spikes, and bend the front of the tire so a chain can be attached. When the stalks are frozen they will break off easily.

Our Water-Works System

By Myra S. Plummer

LAST summer we built an addition of two sleeping-rooms on our house, which is located on a 16-acre farm. We decided at that time to put in a bathroom and water system for use all over the house. The first step was to partition off a small room on the first floor, convenient to the bedrooms, and here we installed a bath tub, closet, and wash bowl.

Hot and cold water faucets were put in the kitchen sink, and likewise in the basement, which is used for a milk-room. In the corner of a room on the second floor we installed a five-barrel galvanized-iron tank for storage, and water is pumped into this by a force pump in the kitchen.

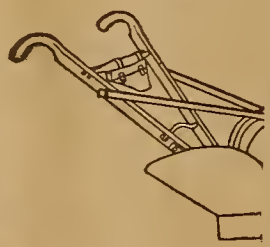
A large cistern close to the house receives the entire watershed from the house and porches. This furnishes sufficient water for domestic purposes. The pump is a double-acting force pump, and is operated about as easily as the ordinary pitcher pump. About five minutes' pumping each day keeps enough water in the tank to give good pressure.

In the kitchen near the sink we have a 30-gallon water tank with a coil heater. By keeping a small fire in the heater we have an abundance of hot water. We located our bathroom on the first floor because it would save so much running up and down-stairs, as we have five little children.

There is nothing we have ever done or expect to do that will give us more satisfaction and comfort than our water system. I might say further that at the same time we built a large side porch off the kitchen, which is entirely enclosed with glass for the winter, and we can use it for a dining-room and for raising flowers. We had screens made the same size as the sash to be slipped in when the sash are taken out in the spring. This makes a screened porch for summer and a sun parlor for winter.

Tool Case for Plow

By Bert W. Culbertson



I HAVE found that a leather tool case such as is used for bicycles is very handy for wrenches and small plow attachments. Attach it to the upper round on the plow as illustrated.

Fixed in this manner it is accessible and is also where you can keep your eye on it.

The plan is much more satisfactory than carrying clevis pins and tools around in your pocket, or putting them down where they are hard to find.

Two Good Hay Doors

By E. G. Phillips

TWO practical methods of hanging gable hay-barn doors are here presented as improvements over the commonly used doors which are hinged at the bottom or slide up and down in wood guides. Doors hinged at the bottom are open to two serious criticisms. First, the doors are difficult to open or close, as is evident from the custom of raising them with the hayfork and a team of horses in the same manner as

the hay is lifted. This makes it impractical to close the doors quickly in case of a storm.

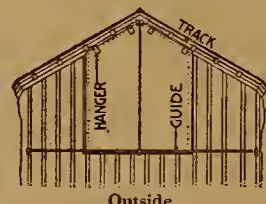
The second criticism is that because of the corrosion of the screws or decay of the wood there is a possibility of the door breaking away from the hinge fastenings and falling. The doors which slide up and down generally have ropes attached to them. These ropes run over pulleys at the top of the opening and serve as a means of operation. Some of these doors work fairly well so long as the ropes do not rot and break away or the rats do not gnaw them. But two men are usually required, however, to operate large doors.

In the first improved method, a pair of doors slide on tracks hung just below the cornice. This is a simple method and an excellent one when there is sufficient space on both sides of the doors. Small gambrel-roofed barns sometimes may not have room enough. Counterweights inside the building balance the doors and make them operate very easily.

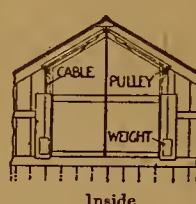
One Man Can Operate Them

The bottom of the doors are held securely to the building in any position by the tubular guide rods which extend entirely across the doors. The brackets supporting the guide rod also act as bumpers to stop the doors in the extreme open or closed positions. The stops also serve as a safety device to prevent the doors from running out of the tracks and falling in case the cables which connect the weights to the doors should break or become loose.

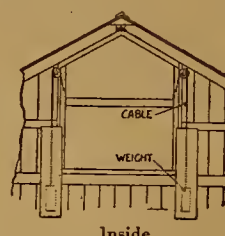
Two pulleys are required for each door, one attached to the header near the center of the opening and the other is fastened between the first two studs adjoining the side of the opening. The weights should be boxed in to keep them clear of the hay and free for action at any time.



Here the doors slide apart on the oblique track



This door is guided by rollers. One man can open or close it



Concrete can be used to good advantage for weights, making them of a size suitable for the space in which they are to operate. A small wood mold can be made in which to cast the weights. Make them in sections weighing ten pounds each, and use the right number to counterbalance the door properly. Concrete will average about 137 pounds a cubic foot.

The second improved method is a vertical sliding hay door operating in steel guide tracks. Four rollers, two on each side of the door, prevent binding and assure smooth operation of the door. This door is also counterbalanced by weights inside of the building. Each weight must equal half the weight of the door. Have the cable attached above the center of the door to make it work well. A wood block attached to the side of the barn will serve as a bumper to keep it from going down too far. One person can easily raise or lower this door.

Hardware Quickly Found

By P. C. Grose

EVERY farm necessarily has a lot of little articles about the place for just occasional usage, such as parts for the farm machinery and the vast amount of small hardware like rings and clevises. We used to keep these things in boxes and kegs on the floor in the wagon shed. They took up a lot of valuable floor space and, besides, it meant a hunt through box after box every time a piece was to be found.

Now that old, time-wasting system has been discarded. I have fitted one gable end of the building with an abundant supply of hooks, pegs, and nails, and on these the contents of the boxes are hung. A cord is used for an article that cannot otherwise be attached to a hook. Now when a certain article is wanted, we have merely to enter the building, glance over the articles, and in a moment we have our eye on the thing we wish.

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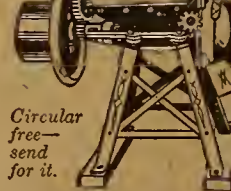
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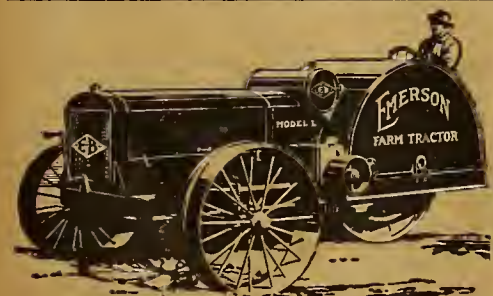
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A four-cylinder, 2-speed, light-weight tractor of great power, suitable for any size farm. Will pull the implements you now have on your farm—gang plows, harrows, mowers, binders, manure spreaders, road drags or graders. Will also operate your ensilage cutter, feed grinder, circular saw, etc. Does more work than horses—costs less and is so simple anyone can run it.

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New Transplanting Machine

A CABBAGE or sweet-potato grower considers the setting out of a half-dozen acres of seedling plants a simple everyday matter. But let it be suggested that a like acreage of alfalfa seedling roots be set for seed-growing purposes, the project is apt to be frowned on as impracticable. Yet there are now thousands of acres of transplanted alfalfa in the West giving bumper crops where ordinary methods of seeding would be followed by failure. An attachment for a mechanical strawberry transplanter now enables one team and machine to transplant 6,000 alfalfa roots an hour.

The pioneer of the alfalfa transplanting system in this country is Prof. N. E. Hansen, whose work in seeking out and developing hardy varieties of alfalfa secured from the near-arctic climate of northern Europe and Asia promises to bear valuable results. This plan of getting full, vigorous stands of valuable plants under unfavorable circumstances is an ancient practice successfully followed for centuries in parts of Asia and Africa. Professor Hansen in searching for hardy varieties of alfalfa found the transplanting system there in use, and on his return introduced the practice into his South Dakota experiments. It will require but a slight stretch of the imagination to expect in the future to find many of our most valuable seeds being propagated as seedlings and then transplanted for seed-growing purposes by means of specially adapted machinery.

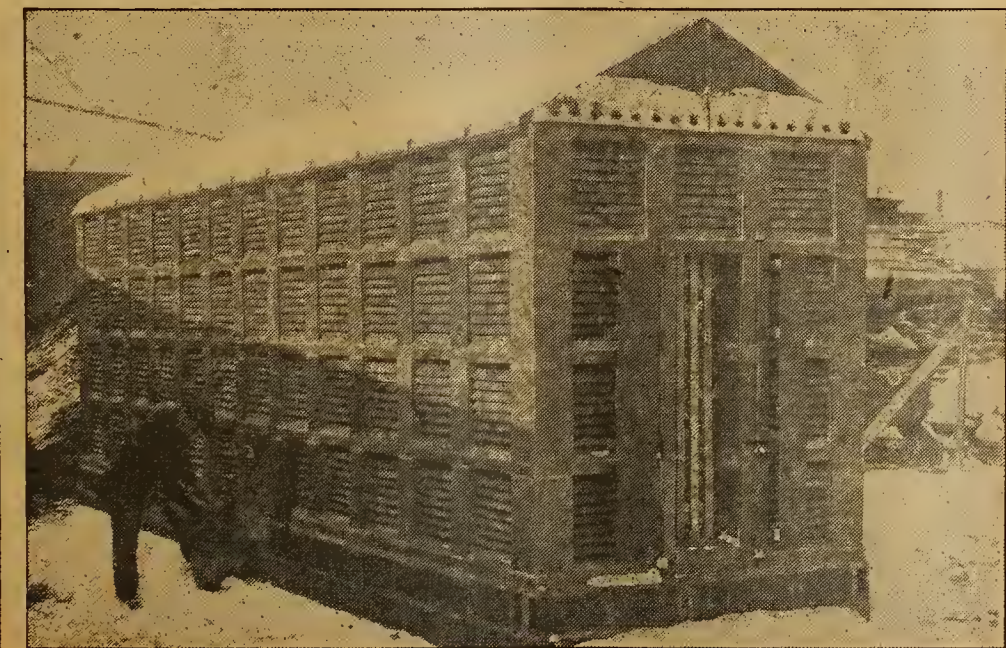
Distribute the Work

DIVERSITY of farm operations which make possible a more equal distribution of the farm work through the year has proved very profitable on many farms. Of two farmers having about the same amount of work, the one who does the greater part of it himself makes the greater profit. By distributing the work through the year it is possible for the farmer to do much of the work himself. The difficulty with single-crop farming is that it requires labor at certain seasons of the year.

Fewer horses will meet the requirements on a farm if the labor is well distributed. In the case of wheat-farming a large number of horses are required for the preparation of the seed bed, for seeding, and for harvesting, while at all other times many of the horses are idle.

Labor Advantages of Rotation

When less wheat is sown and the land devoted to other paying crops, the work would not all be crowded into comparatively short periods. A combination of good crop rotation and a reasonable amount of live stock will give profitable work for the greater part of the year than crop-farming alone. A good rotation will distribute the labor throughout the crop season and live stock will provide labor during the winter months. Such a type of farming has also the advantage of maintaining soil fertility



This practical corncrib is made of tile. It is proof against rats and there is scarcely anything about it to wear out

and giving stability to the farming business.

A grass or legume crop, a cultivated crop, and a grain crop should be included in a good rotation. These crops do not all require work at the same time. The grasses and legumes furnish feed for the live stock and may improve the fertility and physical condition of the soil. The cultivated crops furnish feed for the live stock, aid in controlling weeds, and may be used for a cash crop. The grain crops provide a cash crop and feed for live stock.

A diversity of crops gives less chance for a complete crop failure. Some years the person with only wheat is extremely fortunate because the yield is good and the price is high, while other crops may have been a more or less failure. But other years the tables may be reversed and wheat was a more or less failure, with corn and the other crops making bumper yields. It is safer not to put all of your energy and time in one crop. More diversification means more chances to have something to sell.

Growing Cowpeas

By S. W. Burleigh

COWPEAS are often grown as a forage crop where alfalfa cannot be grown successfully, and as a silage crop when sown with corn or sorghum. The value of cowpeas as a soil-improvement crop is well known.

Cowpeas are adapted to a wide range of soil. They will grow on almost any soil when supplied with the necessary amount of moisture, and given good culture. Cowpeas are best adapted to open, well-drained soils of medium fertility, but will often grow on worn-out soils without inoculation. They will grow in poorly prepared seed beds, but respond best to good cultural methods. They are slightly more drought-resistant than corn.

Their Use in Silage

When sown with corn or sorghum, cowpeas make a high quality of silage, but not so when sown alone. The mixture is successful only on the best of bottom lands. The yield of silage from corn or sorghum and cowpeas is about equal to corn alone. The silage from the mixture is much more nutritious than corn alone on account of the protein content of the cowpeas. When grown for this purpose the corn and cowpeas are mixed in equal portions and drilled in rows about the first of June.

The drill must be adjusted to drill as fast as possible, and the mixture of corn and cowpeas must be stirred in the drill box frequently to prevent uneven planting.

Excellent hay may be obtained from cowpeas if properly handled, but the difficulty of harvesting and curing, the lower yield, and the woody stems make this crop less valuable for hay than alfalfa.

Cowpeas should not be cut for hay until the first pods are ripe. If cut before this the plants will be watery and hard to cure. If the cowpeas are wanted for seed, they should not be cut until the most of the pods are mature.

The rate of seeding depends on the method. Broadcasting requires about six pecks, drilling five pecks. In three-foot rows four pecks should be sown to the acre.

Under some conditions cowpeas are a better crop than soy beans for green manuring, or with corn for silage, or as a catch crop after wheat. They are more certain of making a stand under adverse conditions. For grain purposes or hay production, when the entire season is used for their growth, soy beans are the larger producer if the rabbits do not destroy them. Neither of these plants is attacked by chinch bugs.



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ONE MILLION SKUNK COON, MINK & OTHER FURS WANTED WE'LL PAY THE MOST

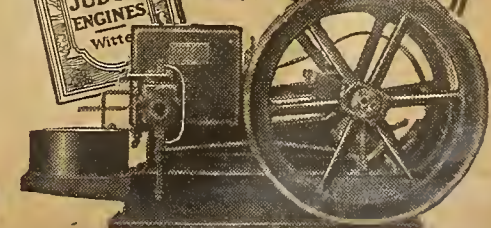
OUR COMPANY IS THE OLDEST AND LARGEST, with LARGER CAPITAL than any other House. Where ordinary Houses buy a FEW HUNDRED, we buy THOUSANDS of Skins and Hides every day, selling to American and Canadian Manufacturers, and exporting to all Countries; just sent a \$30,000 shipment to Sweden. Little dealers cannot compete. We've no Traveling Agents. We want BEEF HIDES, too, paying 20 cents for GREEN HIDES, 30 cents for GREEN CALF SKINS, and HORSE HIDES up to \$8.00 each. We want your GLENS and GOLDEN SEAL. Send for ILLUSTRATED TRAPPER'S GUIDE. It is FREE. WE TAN all kinds of Hides, making garments for our Customers, from their hides. SHIP US YOUR FURS and HIDES, TODAY. Ask your Banker about us. THE OLD SQUARE DEAL HOUSE. Established 60 years. WEIL BROS. & CO., Box F, 92 FORT WAYNE, INDIANA.

YOUR ENGINE SHIPPED TO DAY

DON'T wait 4 or 8 weeks. Wire me your engine order NOW! Get a High-Grade WITTE Engine. I can ship any size—2 to 22 H.P.—Kerosene or Gasoline—Stationary, Portable, or Saw-Rig—all ready to run. Ship today! Fully guaranteed for 5 years. Immediate shipment proves superior factory equipment, and a better engine, just as 30 years' WITTE success proves the superior quality of

WITTE ENGINES

No other similar factory can offer you the engine quality and service that I am prepared to give every WITTE engine user. If you don't know about WITTE engines, write for my FREE BOOK "How to Judge Engines." Gives valuable pointers gathered from over 30 years of practical engine experience—not guess work. Write today. Ed. H. Witte, Pres., WITTE ENGINE WORKS, 2061W Oakland Ave., Kansas City, Mo., 2061W Empire Bldg., Pittsburgh, Pa.



Wonderful New Kind of Incubator

Built Round—No Cold Corners—Hatches on 1 Gallon of Oil—1 Filling of Lamp—Automatic Moisture Supply—Hinged Cover

Send in your name now on a postal or use coupon below. Don't miss the facts about this wonderful new incubator. All old hatching methods revolutionized. Thousands already in use have doubled and trebled poultry profits for owners. **Built Round**—like the hen's nest—**NO COLD CORNERS**; central lamp—no faraway points to heat. Big oil tank, only one filling to a hatch. Flame cut down at burner to regulate heat means *only one gallon of oil* to a hatch. Hinged cover saves work. Double glass in top keeps everything in sight. Eggs turned in five seconds.

RADIO-ROUND

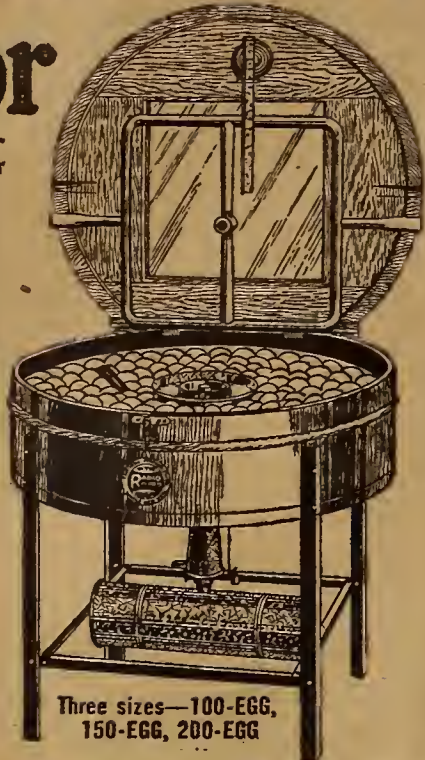


The Radio-Round has marvelous *automatic* moisture vaporizer *built in*—duplicates natural heating conditions, supplies even, moist, mild heat under all conditions, *always*. The work-saving, time-saving, money-making hatcher. A favorite with women because it requires only three minutes a day.

BOOK FREE!

Send postal or coupon for beautiful illustrated book about this new kind of hatcher. Learn why it is as different from others as day is from night. Read startling reports of results secured by thousands of beginners, young folks, women, experienced poultry raisers. Write today before rapidly increasing cost of materials compels us to raise our prices. We prepay freight, give 90 days' trial and ship direct from factory at rock bottom price. Mail coupon or postal before you turn this page. Address

RADIO-ROUND INCUBATOR CO., 182 Main St., Wayne, Neb.



Three sizes—100-EGG, 150-EGG, 200-EGG

RADIO-ROUND INCUBATOR CO., 182 Main Street, Wayne, Neb.

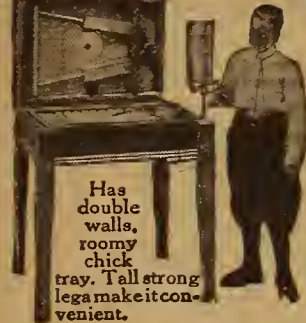
Please send me your free book about the Radio-Round Incubator and Brooder.

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State R. F. D. Box No.

This 13 year old Boy built his own Peerless Incubator



My Free Incubator Plan Book tells you exactly how to build the best incubator that can be built. You can build any capacity incubator, single 150-egg size, or Multideck up to 1200 egg capacity—hot air or hot water heated. You can't go wrong and it means a big cash saving to you. I'll supply all the necessary mechanical parts, not easily made by you, at low cost. They insure you a troubleproof machine of highest efficiency at lowest operating expense.

My Sol-Hot Wickless Lamp makes a clear blue flame: smokeless, sootless, odorless—intensely hot. Easily attached to any incubator.

My Peerless, all-metal, 60 egg hatcher is inexpensive and insures big hatches.

Write at once for my Free Incubator and Brooder Plan Book and Catalog.

H. M. SHEER CO., Dept. 25 Quincy, Ill.



Wins in the Two BIGGEST HATCHING Contests Ever Held

Why take chances with untried machines when for only \$11 we guarantee to deliver safely, all freight charges paid (East of Rockies) BOTH of these big prize winning machines fully equipped, set up ready for use. Why not own an Ironclad—the incubator that has for two years in succession won in the greatest hatching contests ever held. In the last contest conducted by Missouri Valley farmer and Nebraska Farm Journal, 2000 machines were entered, including practically every make, style and price. With the Ironclad—the same machine we offer with Brooder, freight paid, for only \$11, Mrs. C. F. Merrick, Lockney, Texas, hatched 143 chicks from 143 eggs in the last contest.

30 DAYS' FREE TRIAL Money back if not satisfied.

Both for \$11 Freight Paid East of Rockies

MADE OF CALIFORNIA REDWOOD

150-EGG Ironclad Incubator Don't class this big galvanized iron covered, dependable hatcher with cheaply constructed machines. Ironclads are not covered with cheap, thin metal and painted like some do to cover up poor quality of material. Ironclads are shipped in the natural color—you can see exactly what you are getting. Don't buy any incubator until you know what it is made of. Note these Ironclad specifications. Genuine California Redwood, triple walls, asbestos lining, galvanized iron covering. Large egg tray, extra deep chick nursery—hot water top heat, COPPER tanks and boiler, self regulator, Tycos Thermometer, glass in door and many other special advantages fully explained in Free Catalogue. Write for it TODAY or order direct from this advertisement.

IRONCLAD INCUBATOR COMPANY, Box 93 RACINE, WIS.

Do You Have Good Luck With Chicks?

How often you hear some person say: "I have no luck with chicks." "Luck" with chicks starts with the incubator. If it is a good incubator—properly heated, properly regulated, (which is very important) and properly ventilated—your chicks will start off with vitality. They won't come out of the shell half dead and totally unfit to start on their way through life. So many people trust their eggs and their hopes to a cheap machine, forgetting it's not how many you hatch that counts, but how many live and prosper.

Stop Losing Chicks

with cheap incubators. Most of the chicks you lose in the first two weeks die because they do not have enough vitality and strength to start with. A Queen Incubator costs but little more, and the extra chicks that live and grow in one hatch will pay the difference.

Queen Chicks Live and Grow

Queen Incubators are famous for big hatches of strong, healthy chicks that live and grow. Accurately regulated—they will take care of a temperature variation of 70 degrees without danger. Built of genuine California Redwood—very scarce in these days of imitation and substitution. Redwood does not absorb the odor from the hatching eggs. Cheaper woods and pasteboard lining in iron and tin machines retain the odors, to weaken the hatching chicks. The Queen is not a cheap machine, compared with many cheaply constructed machines on the market. It is of moderate price, but cheap in the long run. It will be turning out high-percentage hatches of sturdy chicks long after the cheap machines are junked. Ask for Catalogue.

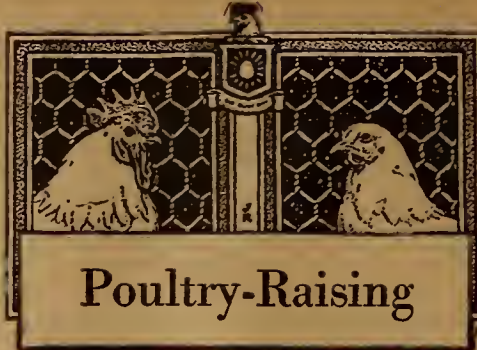
QUEEN INCUBATOR CO. 1061 N. 14th Street Lincoln, Nebraska



Mrs. C. C. Blake, of Pocatello, Ida., just starting in the poultry business writes: "An old poultryman told me I had made a wise choice when I selected the Queen. He has 14 different makes of machines at his large poultry plant, both hot water and hot air. He finds hot water machines far superior to the hot air, and the best hot water machine is the Queen."

Self-Supporting Egg Tray and Deep Nursery—Can't Fall Out

Prices \$8 Up



Poultry-Raising

Hens Return Good Profits

By Spencer Babcock

A GOOD hen can be raised for about \$1, she can be kept for one year after beginning to lay for about \$1.25, her eggs for a year, estimating 12 dozen at 25 cents a dozen, will be worth \$3, and the hen will be worth 50 cents when through laying at the end of her pullet year.

This is a return of \$1.25 on an investment of \$2.25, which is an increase of about 55 per cent, not counting labor or depreciation of plant.

If we count 25 cents as the cost of caring for a hen one year and ten per cent for depreciation of the plant, there still remains over 30 per cent net profit on the investment.

These facts were brought out in a Missouri experiment where 55 White Leghorn pullets were kept for a year's laying, all the feed that was fed to the hens being weighed and the eggs being sold at market prices. The 55 hens produced 12 dozen eggs each, which were sold for \$157.17. The cost of keeping the 55 hens one year was \$66.27, reckoning feed prices at about average market rate in 1915. The hens were fed a well-balanced ration and had the run of a yard 100 feet square. The price of eggs for the year averaged approximately 25 cents a dozen.

From the foregoing figures it will be seen that where one has good hens to start with and handles them properly, a net profit of considerably over \$1 a year can be counted on from a flock of that size.

But the know-how is just as important in handling hens for profitable returns as is the case with any other kind of complicated business.

If THE chickens, and particularly the layers, have not had a suitable arrangement for fresh drinking water heretofore, be sure that it is provided now without fail. Get this fact well established in mind that a constant supply of fresh water is just as essential as a full supply of proper feed for laying hens, and developing chickens as well.

A Henless Feather Hover

By Mrs. Grant Quick

FOR my early hatches of incubator chicks I sometimes use fireless brooders of my own construction. These are made out of goods boxes, using pasteboard or heavy paper attached to the inside of the boxes to make the chick chamber round to avoid the danger from corners.

The hover cover is made of burlap into the under side of which I stick a good quality of feathers until the burlap is completely covered. Over the upper surface of the burlap, through which the feather quills protrude, I spread a thick flour paste which when dry holds the feathers in place. The feathered surface of this hover cover is tacked to the top of the box so that it will hang down and rest on the little chicks. Small holes are made in the hover to allow of ventilation, which

must be arranged according to the age of the chicks and the prevailing temperature.

I use a hover about 25 inches in diameter for 75 small chicks, and in cold weather keep the hover in a room where there is fire for four or five days. Afterwards the hover is kept in a room or house protected from drafts, and should the weather become too cold a little artificial heat in the room keeps the chicks more comfortable when outside the hover.

I find this feather-covered hover a good makeshift until larger operations require an artificially heated brooder, which now has the preference for brooding chicks on a large scale. My experience is that the chicks grow and develop just as well handled as here described as when hens are used for brooding them.

Getting the Early Egg

By Mrs. L. Sanger

EVERY intelligent breeder of the American breeds of chickens finds it is quite possible to develop strains of Reds, Rocks, Wyandottes, etc., which will become practically as early layers as the Mediterranean breeds. Breeding for this purpose tends to reduce the size



of the stock to some extent, but by taking precaution, particularly in selecting the large, heavy-boned males for breeding purposes, the American breeds can be handled so that they will lay nearly as young as Mediterranean breeds, and the weight of the hens can be kept from two to three pounds heavier.

The Rhode Island Red pullet, Betsy No. 14, here pictured, owned by Mrs. Laura Sanger, was hatched April 20, 1916. Five months later she had 11 eggs to her credit.

Profitable Alive and Dead

By N. H. Young

THE advantage the American breeds have when going to the block must be considered when the variety of poultry to be kept is being considered. This is brought out in the experience of N. H. Young, a Minnesota mail-carrier, who bought a small flock of one- and two-year-old Barred Rock hens in the fall for 50 cents each, a cockerel being thrown in for good measure.

These hens gave a satisfactory production of eggs during the year and when sold as two-year-olds and three-year-olds, they brought 80 cents each and the cockerel \$1.

A HIGHLY recommended remedy for rats in poultry houses is poisoning with a mixture of two parts corn meal and one part sugar of lead. Make sure that the hands do not come in contact with the poisoned feed, and also have the poisoned feed out of reach of the chickens, by putting the poisoned meal in the center of a tight box large enough so that chickens cannot reach through the 1½-inch holes made in the sides of the box so that the rats can enter it.



Wholesale hatching with an incubator of this extension type, combining custom hatching with their own, is proving profitable on small poultry farms

Are You Living on the Chickens?

By H. H. Johnson



H. H. Johnson
"The Incubator Man"

AN odd confession came to light the other day. One of our nearby customers came into the office and among other things said, "Do you know it just dawned on me that during the five years we lived in Texas the wife kept me and the children? She raised chickens and always seemed to have money. The children were never without good clothes, and grocery and meat bills were always paid. I cannot recall of having taken care of these things, and I really believe that her poultry kept us while I kept myself busy farming."

I wouldn't doubt this. I have received many letters from farmers who admitted that their wives made more dollars from poultry than they made dimes farming. This is no reflection on grain and stock raising but it shows what poultry can do when put to the test.

Of late years, more farmers are taking to poultry raising. Instead of leaving it all to the women folks and cussing every time the hens roost on the buggy or farm machinery, they are providing for poultry houses and giving the chickens a place to stay. They find that it pays. Maybe the chickens require a little grain. But so do the hogs. And what farmer couldn't raise a few hundred chickens for the time and expense put in on raising half a dozen hogs?

The old order of things is changing. The poultry farmer has found it profitable to look at his chickens in the same light that the dairy farmer



You Can Live Well on Poultry Profits

looks at his cows. That is so far as the money-making possibilities are concerned. But instead of having to buy feed for his poultry, the chickens can be fed the scraps from the table, and the waste from the feed bins and feeding that cattle and hogs tramp into the mud.

No one is too poor to raise poultry profitably. And it takes less expense, less work, and less management to make farm poultry pay than any other kind of poultry. By farm poultry I do not necessarily mean mongrels. I am of the opinion that most poultry is now pure or cross breeds of two pure varieties which should not be classed as mongrels.

There is not much capital needed for starting. Some unused shed can do for the chicken house, hence no expense in that direction. About the only equipment needed is a good incubator, a brooder and the eggs. If the incubator is built right, no special room or cave is needed for it. It supplies its own protection from the weather. The same can be said for the brooder, although it is always well to set the brooder in a big box, such as a piano box, so that the little chicks can run around with comfort.

The best farm incubator is the one that runs itself and that can be depended upon to hold the heat even in cold weather. Lots of times argument is made on one or two special advantages. Usually these are real advantages but they are played up to make the reader overlook defects in some vital point which cannot be corrected because others hold exclusive patents, as for example our Old Trusty heating system. We have exclusive patents on this system.

This year as eggs and poultry are high, there is a tendency on the part of small town folks to get into the business. We make an Old Trusty in 100 to 120 size with a California redwood case that is adaptable for such folks. Also it's less expensive. With 120 eggs and this little Old Trusty "Special" you can start in the poultry business and in seven



Table Scraps Make Good Feed

months' time have a good sized flock of layers. The cost would be about \$16 to \$17 for pure bred eggs and the incubator.

A flock of only 50 laying pullets this fall should be worth \$50.00 at \$1.00 each, or if kept for layers should bring twice the amount in income. In most families, some member makes the incubator their special care and it does not interfere with the work. The spring fries are welcome to the family table or bring big market prices.

It has been our experience that an investment of a few dollars to start early hatching means 200 to 400% profit. On a bigger scale it wouldn't do it, of course. In fact the money in poultry is in carrying it on in a small way. I am not, you see, offering you a proposition that means a fortune or bankruptcy, but just a plain business proposition and it makes me less than \$1.00 and you from \$40.00 up according to the attention you want to give it.

At this writing we have a little over 700,000 customers. We have dealt with more poultry raisers and sold three or four times as many incubators as any other concern that I know of. I believe this success is due, first to our practical common sense incubators and brooders; second to our knowledge of poultry raising as 95 per cent of the people have to raise it; third to our plan of facing the proposition fairly, striking the average without playing head lines of sensational and unusual successes, of which we have our share; and fourth to our settling down to business here in Clay Center, Neb., among the people who bought our first machines.

We built from the ground up, and have grown year by year. We stuck hard and fast to making incubators and brooders, built with a construction that was right in the first place and that did not call for changes every year, or new faddish frills to help them sell.



Are You Selling Eggs or Buying Them?

We have always tried to give a well-rounded value, a proposition with meat on the bone, so to speak. Yet we do not sell anything for less than it costs. Our profit is a fair one, about seven per cent, so that it is not necessary to ask two profits to make up losses somewhere else.

Now, Reader, it would not be good business for me to urge you to take up something that you could not make money on. So whether you decide to do business with us or not, let me give you this one point. There's good money to be made in poultry raising. This year is a year of opportunity—meat prices are high and it looks as though they will be higher. With the increasing cost of living everywhere, poultry could prove more than handy to help square off the table expenses.

Our new annual catalog deals with profitable poultry raising and we are always glad to send a copy free. Also we like to write letters. If you have any poultry troubles, tell us and maybe we can offer a suggestion or two that would fit. Write for our book anyway and let's get acquainted.



No incubator is better than its heating system, H. H. Johnson, "the Incubator Man."



M. M. Johnson
Inventor of "Old Trusty"

1917

Conveniences

Make Big Hatches Easier Than Ever

Old Trusty

EASIER hatches, but not *bigger* hatches, because no feature could improve Old Trusty's present record for higher average hatches year in and out, even in coldest winter weather. I call these new conveniences, work savers. And they are big work savers, too.

Note the big oil drawer. It slides away in under the case—big enough to hold five or six quarts. Saves filling the lamp bowl every day.

Next, note the handy thermometer holder on the door. I don't want to be accused of saying this would make bigger hatches, but if easier watching means better watching and correct temperature then this device helps for bigger hatches. Open the door and the thermometer comes out. Instantly in view. No fumbling over the eggs—saves stooping and delay.

Big oil drawer can be removed instantly but does not require removing to be filled. Holds 5 to 6 quarts.

Write for Catalog

Of course these new work savers are not the big things to look at in Old Trusty. No one part of Old Trusty is any more important than another. We make each part of Old Trusty as though your entire hatch depended on that one part.

For example, note the heating system, the part I am holding in my hand. I won't attempt to describe it, except to say that it's all copper and lock jointed and built on a plan that puts even heat all over the eggs. Note the shape of the discharge pipe in center and return pipes on the outside. Allows no cold corners nor hot centers.



The Famous Old Trusty Incubator and Brooder

Annual Catalog

MANUFACTURED BY THE M. M. JOHNSON CO. CLAY CENTER, NEB.

Quick Shipment—Mail the Coupon

In spite of OLD TRUSTY'S unbeatable construction it is not expensive. It's made in the largest exclusive incubator and brooder factory in the world. That's why we can give you such a big value for your dollar in OLD TRUSTY Incubators and Brooders. Write for our catalog telling all about them and giving you the "know how" on poultry raising.

Have fat broilers to sell at high prices in June and July and laying pullets in October and November. It's easy—thousands are doing it—let me show you how. Write today for our book if convenient, and tell us your poultry troubles. Yours truly, H. H. Johnson.

The M. M. Johnson Company
Clay Center, Neb.

Please send me copy of your 1917 OLD TRUSTY Book.

Only \$9.60 Buys this redwood cover Old Trusty—freight paid east of Rocky Mountains—a trifle more farther west.

Quick shipment from factory at Clay Center or warehouse at St. Joseph, Mo., or Seattle, Wash.

Here's the money-saving sensation of 1917. It's Old Trusty through and through—same as we sold in 1908, which machines are still in good service. This is 120 egg size.

Name _____

Address _____

Town _____ State _____

The M. M. Johnson Company
Clay Center, Neb.

Write a letter if convenient and tell us your poultry troubles. Mention how many chickens you keep, whether hens lay in fall and winter, whether you have used an incubator and have been successful.

Get Yours at the Old Price



Write Today

Same Quality

—and at the same old unbeatable price. Prices everywhere are climbing, but not on the poultry raiser's old standby, the

MANKATO

—the incubator that has made big profits for thousands of owners. Big stock of materials on hand enables us to quote the old price. Write and get your machine before our stock is gone. Same quality redwood case—combination hot air and hot water heating system. Write today.

Mankato Incubator Company
Box 722 Mankato, Minn.

SWEET CLOVER

Our seed is treated by scarifying process to assist germination. Better than common stocks. Price very low. Send for sample seed, free booklet, 130-page illustrated catalog, and special red ink price list. All sent free. Address

IOWA SEED CO., Dept. 32, Des Moines, Ia.

SHOEMAKER'S BOOK on POULTRY

and Almanac for 1917 with many colored plates of fowls true to life. It tells all about chickens, their prices, their care, diseases and remedies. All about incubators, their prices and their operation. All about poultry houses and how to build them. It's an encyclopedia of chicken-dom. You need it. Only 15c.

C. C. SHOEMAKER Box 982, Freeport, Ill.

DON'T KILL Laying Hens

The Potter System is the greatest discovery of the century. It tells you **How to Pick the "Layers"** from the loafers or diseased hens. Used by over 50,000 poultrymen. Simple and certain. Save food and build up a flock of all-layers. New 100 page Potter System Book explains it. Circular free.

POTTER & CO., 65 Forest Ave., Downers Grove, Ill.

More Sunshine Less Feed



CHIEF

Sunshine Hog House Windows

The greatest modern hog house feature for winter pigs. Roof windows that let the sunshine in right on the pen floor. Steel, rot and rust-proof. Can't leak. Never wear out. Most economical and successful made. Recommended by all users.

FREE New Swine Record—Also Four Blue Prints

—of Modern Hog Houses

Write today for our splendid new Swine Record System—simple yet complete—no guesswork. Our 4 Blue Prints show you how to build an absolutely up-to-date hog house. All free.

SHRATGER & JOHNSON
610 Walnut St., Atlantic, Iowa

Sure Hatch Chicks Make Money



They thrive and grow. They are born healthy and strong. Many owners make 1000% profit yearly. Machine is simply and easily operated. The wife or the children can run it. The Sure Hatch Incubator lasts a lifetime. **FREE**

19 Years' Experience

has taught us how to build this superb incubator that hatches fertile eggs into healthy chicks. No losses from poor incubation. Hatches in cold weather. Requires only a little space. Just a corner anywhere around the house. An ornament to any room.

SURE HATCH

PAYS IT'S WAY

You get your money back and a nice profit too from the Sure Hatch in a few weeks. Be on the safe side. Sure Hatch Chicks are strong and healthy; that's the kind you must have to succeed.

BIG CATALOG FREE

Do not send stamps or money, just a postal with your name and address. We will send you our big, interesting and valuable Sure Hatch Catalog. Pictures and describes fully the Sure Hatch. Shows the photographs of many owners. Maybe some of your friends are there. Gives the secrets of successful Chicken Raising and Poultry Profits. Tells all about our Generous Offer of Free Fixtures, free Swine Record Book and Freight Paid. Send that postal to us today. Early hatches pay best.

THE SURE HATCH, Box 66, Fremont, Nebraska
"Sure Hatch Chicks Make Sure Profits"

Needs No Broody Hen

By James R. Snyder

I HAVE been brooding chicks for a large number of years. At first I used small fireless hovers, putting 60 chicks in a hover. I separated the hovers by foot-wide boards. These were put in a tightly plastered room 16x18 feet in dimensions, with a floor. I put in an ordinary wood stove and kept a fire in it when the weather was extremely cold.

The board partitions kept my Leghorn chicks separate for a week or two, then they roamed from pen to pen and took possession of the entire room. Every night I had to see that too many chicks did not get into one of the little brooders, which I made out of low dry-goods boxes.

This house that I used for a brooder plant is tight and dry, and was formerly used for tenants. As the chicks grew they took possession of the entire house. I have put 900 chicks in this house and raised them to six weeks old with a loss of less than 50 chicks. They never went outside during that period, and did well.

I use lots of litter. Alfalfa leaves at first. For the first few days chicks will eat the litter, and the alfalfa leaves are good for them. Cut wheat straw I find to be the best litter, and I use it the end of the first week or ten days. Alfalfa soon gets damp and molds quickly. Oat straw is not so good as wheat straw, for the same reason.

With the small fireless brooder outfit I could water, feed, and change the litter for the 900 chicks in thirty minutes in the morning. For the other feeds five minutes each feeding time was sufficient. An hour per day easily cared for the 900 chicks.

After the chicks had the run of the entire house I watered and fed them in one or two places instead of feeding in each hover run, as was required at first. When fed altogether the time required was greatly reduced.

The point I am making, you will see, is the saving of time. All that we gain by brooding chicks in large numbers is the time and expense saved.

I disposed of my old lamp brooders years ago, and would not accept any more gratis if I had to use them. I could not afford to operate them.

So much for the old method of brooding chicks. I have given my experience with the old method merely to show I knew the ropes in handling large numbers of chicks together before I purchased a stove brooder.

I purchased the largest sized stove hover the company made. Their recommendation was not to exceed 500 chicks. But this number is too small for me to give my time to, as I can attend to 1,000 in the same time I can attend to 500 if all are in the same room.

I set up the brooder in a room 10x60 feet in dimensions. The building was one I had built to use with the fireless brooders, and I had used it successfully for two years for that purpose.

I put in approximately 1,200 chicks. At the end of three weeks I had lost less than 50, and at the end of six weeks about 75. The hover would not cover 1,200 chicks even at first, so I pieced it out with window screens placed on quart tin cans filled with sand to hold them in place. On top of the screens I put burlap bags to retain the heat. First I used only two small screens, but as the chicks grew, more screens were added, until I had the hover entirely surrounded with them. In place of a five-foot hover it had become a nine-foot hover.

Help Solve Labor Problem

I kept the stove heated about four weeks, until the middle of April. When the chicks were small I placed about the hover an enclosure to keep them in safe reach of warmth. The enclosed space was gradually enlarged for two weeks until it was safe for the chicks to have the run of the room.

All of the 1,200 chicks were kept in the 10x60-foot room for about six weeks, then were allowed to run outside in a yard for a few days to become way-wise. They were then given free range. All the pullets were kept in this house until put in winter quarters. I had over 500 pullets from this bunch of 1,200 chicks that were brooded together with the one stove brooder.

The long house I have described, used of late years, is located over my incubator cellar, and is practically air-tight on the ends and back side. The south side has four long windows reaching to within about 12 inches of the floor. I raised thousands of chicks in this house, with no fire even in zero weather, before getting my stove brooder.

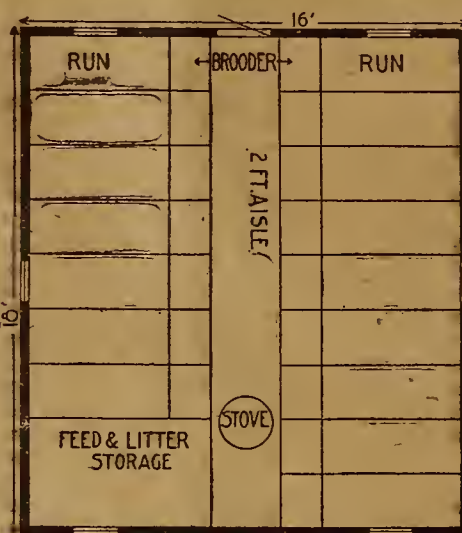
As a last word about the stove brooder I would add that I never had chicks "pile up" once, nor one smother. The heater works all right until we get hot days and cool nights. The regulator on a hot day closes all the drafts and the fire goes out. To hold the fire I put a

small wedge in the damper in the morning so the draft cannot be closed. This makes the hover too hot in the daytime, but I open the windows and the chicks go to the farther end of the room when they desire.

Feeding is an individual matter, and many successful poultrymen use quite different plans of feeding. Here is my general plan:

I boil the infertile eggs, taken from the incubator, for a half-day, and chop them with a food chopper with stale light bread and wheat bran. I also use chick scratch-feed for the first week, and gradually get them onto wheat and cracked corn.

Whenever for any reason my chicks are not making sufficiently rapid and vigorous growth, or are slow in feathering, I feed a mixture I call my "duck" mash. This mash is composed of 100 pounds shorts, 100 pounds corn chop, 200 pounds wheat bran, and 50 to 100



Fireless brooders and small runs in room 16x18 feet accommodated 1,000 chicks

pounds beef scrap, seasoned with about a quart of salt to 500 pounds of the mash mixture. This mash is fed in a moist, crumbly condition.

After the chicks are on range and have the run of alfalfa fields, grain stubble, and the like, I do not need to feed any of the duck mash, and only a partial ration of whole and cracked grain. The myriads of grasshoppers and other insects help to balance the ration in a way that cannot be improved upon for developing the growing birds.

Cooked Vegetables Hasten Growth

No matter how the chicks are being fed, they have at all times access to hoppers of wheat bran, grit, shell, and charcoal. Plenty of fresh water is even more essential than generous feeding.

Later in the season cooked potatoes and pumpkins mixed with the mash grain, I find, will materially reduce feed cost. I also feed raw cull potatoes in small quantities and sprouted oats for succulence after green food on the range is not obtainable.

When the cockerels begin to crow I sell the culls of both sexes. About September 1st I put the pullets in the laying houses. After ten days' confinement they will generally return to their own houses to roost, if only the pullets in one house are given liberty at the same time until they become accustomed to their new quarters.

Hens when once accustomed to a certain house will almost invariably return to it to roost and lay. Last winter I had occasion to locate 45 hens of a certain strain of breeding. These hens had been put into three different houses in the fall, and later had free range, but 44 out of the 45 of the hens mentioned were found in the houses in which they were placed in October.

I am never able to change hens from one house to another of different design without losing in the egg yield.

My plan of getting a good winter egg yield is to feed the pullets so well in the early fall that they will be well developed before the weather gets cold.

My feeding schedule for laying hens, with some variations, follows: Scratch grain and sprouted oats in the morning; duck mash at noon, and whole corn and oats at night. Handled in this way my Leghorn pullets begin laying in September, and gradually increase to a 50 per cent yield or better by Christmas. If they show signs of failing to lay as early as they should, I stimulate them a little by feeding more moist mash in which boiled potatoes are mixed, and in which a dash of mustard or pepper is included to flavor it.

December 20th I gathered 69 eggs from a bunch of 120 pullets.

SMALL families will find that a few of the best squab-producing varieties of pigeons will make many an enjoyable meal where a large chicken is not wanted. Two or three pairs of pigeon breeders kept in a small wire-enclosed fly will be sufficient for an occasional meal of squab or young pigeon.

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Easy Money from Geese

By M. A. Herold

AS a means of getting some easy money, a woman of my acquaintance has met with gratifying success. She has only undertaken geese-raising in a moderate way, but I can see no reason why several hundred geese could not be raised and disposed of to equal advantage where there is pasture and marketing conditions are favorable.

The goose-raising operations I mention were begun in an experimental way with a trio of mongrel geese bought for breeders, the two geese costing \$4 and the gander \$2.50. Excellent hatches were secured, averaging four goslings from five eggs. The goslings were sold when they weighed from 8 to 10 pounds and brought from \$1.60 to \$2 each. The next year the mongrel gander was disposed of and two ganders and one goose of the Embden breed were added to the breeding geese on hand, making six geese and two ganders for the breeding flock. From this mating the goslings weighed from 13 to 15 pounds each at the same age when the mongrels the preceding year averaged five pounds less, which proves that the purchase of pure-bred Embden breeding stock was a wise step. The mongrels when full-grown averaged only 13 pounds. Now the pure-bred geese average 18 to 20 pounds apiece. There is also a nice profit in favor of the pure-bred geese from eggs sold for hatching. From the mongrel geese the price for hatching eggs was 10 cents each; now 25 cents is the price charged. Also, where geese were sold by the pound at retail for 18 cents a pound, the larger and more attractive geese sell for 25 cents a pound retail, live weight.

The geese eggs are all hatched by hens, in cold weather the number being limited to four or five to each hen. In summer the hens are given seven eggs. This allows of keeping the geese laying as long as possible. At the end of the laying season each goose is allowed to hatch one clutch of eggs. But neither the hens nor geese are allowed to have charge of the goslings after hatching. It has been found that by raising the goslings by themselves and using movable yards with comfortable sleeping pens much less loss and better growth result.

Rape and lettuce are grown to piece out any shortage that may occur in feeding the goslings. The grain feed for the goslings is two parts corn meal and one part bran, mixed with sour milk whenever possible. This hastens the growth and results in well-developed roasting birds when ten to twelve weeks old.

Unless the rape, lettuce, and similar feed are supplied to the goslings regularly, the quantity given must be limited; otherwise they will overeat and in some instances it will cause their death.

Goslings Bring \$3.00

The goslings are sold to retail customers in the city, the orders coming either by telephone or, more frequently, the customers come after the birds in person. These customers depend on getting the goslings year after year, and in this way little difficulty is experienced in selling the geese when they are ready for sale. The past season \$3 has been the usual price received for goslings, and an even higher figure has been secured.

The breeding stock are kept with a comparatively small expense, except during the breeding season. They secure nearly their entire living during the summer and fall from pasture, and in the winter a large part of their feed is early-cut hay, waste vegetables, and a very little ground grain. A good mixed pasture of clover, blue grass, and other grasses will keep more than double the same number of geese than can be kept on poor, run-out pasture.

Disappearing Table

By John L. Woodbury

THIS is a device which I have used successfully in poultry houses where it was necessary to economize on space. I have found it very handy as a support for the watering dish, and the feed hopper, too, may be placed above it, and both be beyond reach of the flying litter.

It is simply a small platform hinged to the wall between two studs and provided with legs. Small holes should be made in the floor so the legs will not be moved by the scratching of the birds. At any time desired the whole contrivance may be folded back against the wall and be secured by a button.

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Hay Unloading Tools
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Dairying

Give Heifer Second Chance

By E. L. Wood

SOMETIMES one acts too hastily and condemns a heifer before she has had a chance to prove what she can do in the production of milk and butterfat. If I had a well-built heifer that showed evidence of being a good dairy cow, and she failed to do good work the first year of milk-giving, I should try her the second time. Full development does not come with the first year.

This holds true no matter at what age the heifer is first bred. My best cow has freshened with her third calf, and it would take big money to buy her to-day. As a heifer her first year's work was not satisfactory, and many men would no doubt have discarded her. But she came from a good cow and had the physical qualities of a good dairy animal, so I kept her for another trial.

She is now proving the wisdom of that decision. So I say that I believe many heifers are condemned too hastily.

Can't Deceive the Scales

By Monroe Conklin, Jr.

OF ALL my dairy machinery, I believe the milk scale and dairy-record sheet are the most indispensable to long-distance profit. I find the individual cow accounts are the most certain and unforgettable means of knowing at the end of the year what each cow has done to pay me for what I have done for her.

Froth on milk deceives the eye and tired muscles overestimate the cow's mess. If hired help does the milking, a record sheet is still more necessary for the proprietor to know each cow's performance. I derive enjoyment as well as profit from keeping a dairy record. I like to know each day how much this and that cow gives "this morning" or "to-night." Moreover, I enjoy boasting how much a cow gives, and I feel justified, for I know the boast is based on actual accomplishment.

It makes an individual of a cow to watch her performance, and she is no longer a mere one of the dairy but a combination of type characteristics which we learn to recognize and thus become expert judges of cows. Keeping a record of totals and averages is a careless way of conducting a dairy. We must keep books with the individual, and not simply with the herd.

Experience has taught me that a cow which will give 50 pounds of milk a day in the flush of feed is often not as profitable as a longer-period cow which will give more milk under less favorable circumstances. Different cows also respond more readily to different feeds. A dairy-record sheet is very necessary in tracing this responsiveness.

June	Bess		Star		Spot	
1	Fresh		16.2	16.0	15.8	
2	25.3	24.0	17.5	16.0	16.9	
3						
4						
5						
6						
7						
8						
9						
10			Dry			

A practical and simple form for keeping individual records

And, finally, if a cow is to be sold, the dairy record furnishes the best evidence of her actual worth, and is rapidly becoming the only recommendation recognized by wise purchasers.

Cows Relish Beet Pulp

By E. W. Webster

IN a Washington State experiment, cows fed beet pulp moistened with five parts by weight of water rapidly

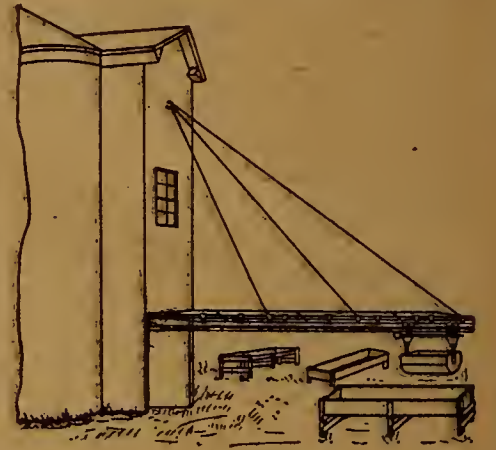
increased in milk yield during a two-weeks period. The cows ate the beet pulp reluctantly at first, but soon learned to relish it. Later they ate from six to eight pounds more of the soaked pulp than of corn silage.

The cows fed on beet pulp kept in good condition. As corn silage and beet pulp are about equal in feeding value, the choice depends on the cost of raising and preserving silage as compared with the cost of the dried beet pulp.

Easy Silage Feeding

By Calvin Fraser

THE use of overhead carriers on stationary tracks has long been a means of saving labor in feeding as well as in the disposal of manure. The sketch illustrates a similar principle as applied to yard feeding. The carrier track is hinged at the silo chute and silage may be delivered to any feeding rack within its radius.



Better than basket or wheelbarrow

Besides saving time, this method of silage handling is especially convenient during bad weather when the yards are muddy.

"Foul in Foot"

By Dr. A. S. Alexander

"NINE cows out of my dairy of twenty-two," writes a New York reader, "are so lame they can scarcely walk. I have tried everything that I could learn of, but they do not seem to be much better. This has been a serious drawback to the dairy because those afflicted give hardly half the usual flow of milk. My yard has been somewhat muddy where the cows have gone back and forth between the water trough and barn, but they have traveled the same route for five years and I have never had but two cases before. I have been taking the straw from the calf pen and throwing it out where the cows could walk on it. Could that cause the trouble?"

The disease is known as "foul in foot," and is caused by irritating matter getting between the toes and inflaming the fine skin of those parts. The straw mentioned in the letter has doubtless been responsible for much of the irritation. Mud and filth also contain a germ known as *Bacillus necrophorus*, which is normally present in the intestines of hogs and therefore in every yard and place where hogs have been kept.

When a sore or laceration of the skin starts it may become invaded by the bacillus, and the result is a canker sore. The best method to proceed in this case is to scrape away all loose mud and filth from the yard, and put in a rough concrete floor wide enough for the cows to use comfortably. Such a job of concrete can be constructed at small cost, will last for years, and stop the foot trouble.

Treat the animals now affected by cleansing the affected parts, but do not draw a rope back and forth between the toes. That aggravates the sore and increases the inflammation. Cut away all loose or under-run horn of the hoof. Then immerse the foot for a few moments in a solution of copper sulphate and a pint of hot water. Afterwards apply oakum or cotton batting that has been soaked in a five per cent solution of coal-tar disinfectant. Press this into the sore places and keep in place by a narrow bandage passed between the toes and crisscrossed around the pastern above.

Renew the dressing once daily for three or four days; then, once daily, dust freely with a mixture of one part each of zinc oxide, tannic acid, and boric acid, and put on a light bandage. After a few days, when everything is doing nicely, put on a less expensive dusting powder, such as a mixture of equal parts of slaked lime, powdered wood charcoal, and sulphur. In many instances the coal-tar disinfectant packs used persistently will prove all the treatment necessary.

"Selecting and Developing the Jersey Herd"



is the title of an interesting booklet by Prof. Hugh G. Van Pelt. Describes the five essentials of a successful dairy cow. Explains how to develop the milk producing qualities and increase the vigor of the heifer calf. Write for this booklet today. It's free.

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The Melotte Separator

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Dept. 4042, 19th & California Ave., Chicago



GET Your Cream NOW!

ONLY \$2 Down
A Year to Pay

on This Easy Self-Earning Plan

You won't feel the cost at all. The machine itself will save its own cost and more before you pay. We ship any size separator you need direct from our factory and give you a whole year to pay our low price of only \$24 and up. Read what Alfred Geatches, No. Jackson, O., says: "We are getting more than twice the cream we were before. The separator is very easy to clean and runs very easy." Why not get a lifetime guaranteed New Butterfly separator for your farm and let it earn its own cost by what it saves?

(31)

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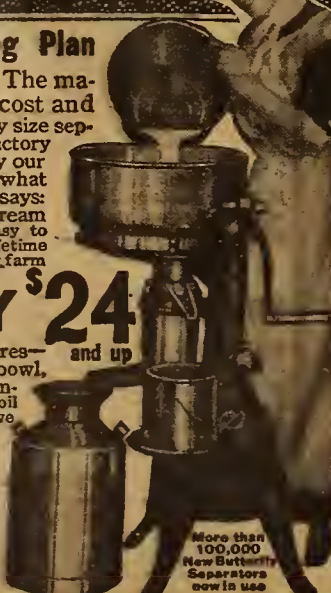
Cream Separators have these exclusive high grade features—frictionless pivot ball bearings bathed in oil, self-draining bowl, self-draining milk tank, easy cleaning one piece aluminum skimming device, closed drip proof bottom, light running cut steel gears, oil bathed. Guaranteed highest skimming efficiency and durability. We give

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against all defects in material and workmanship. We ship you the size machine you need, let you use it for 30 days. Then if pleased you can make the rest of the small monthly payments out of the extra cream profits the separator saves and makes for you. If you are not pleased, just ship the machine back at our expense and we will refund what you paid. You take no risk. Write for FREE Catalog now.

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More than 100,000 New Butterfly Separators now in use

Silage Whets Appetite

By H. L. McGhee

FOR fifteen years we have followed a plan of silage feeding that does not seem to be generally practiced, but of its success I will let you judge. About an hour before milking time we feed a two-gallon bucketful of silage to the cow to whet the appetite. The rest of the feed, which is given at milking time, is usually linseed meal and bran.

Our herd consists of a large type of grade Jersey cows sired by a registered Jersey bull whose dam had a good production record. They produce about 8,000 pounds of milk yearly to the cow, and it tests from 4½ to 6½ per cent of butterfat. We sell our products, which are butter, buttermilk, and skim milk on an established route in a small city five miles from the farm.

Our cows give returns of close to \$200 apiece annually, and we have the calves and manure besides, which we figure pays for our concentrates and labor. This leaves only our silage and other small expenses to come out of the \$200, so you see we make a very nice profit.

While our farm (we live in Ohio) is very well adapted to dairying, we attribute our success to these things: First, attention to the comforts of our cows, which means a good stable and not allowing them to stand out all day in all kinds of weather; second, to feeding a balanced ration and feeding the most economical ration to be had; third, seeing that our cows never suffer for water in winter or summer.

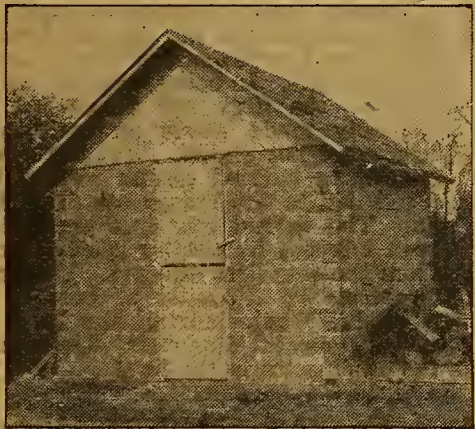
In addition, we put on the market a grade of dairy products good enough to command a price above the average, and which people will prefer even at the extra price. Any man who pays attention to these points can surely make a success of dairying.

Ice House of Concrete

By Carlton Fisher

WET sawdust and meltage from the ice hasten the decay of the ordinary wood ice house. The concrete-block construction shown here is a step toward permanent ice houses. This building is about 12 feet square and will hold close to 30 tons of ice.

Allowing for the usual waste, this is enough ice to last a medium-sized dairy



Hollow concrete blocks make a durable wall construction for the farm ice house

from the first of May through October. The top of the ice house is of wood; the roof is covered with prepared roofing.

Believes in Winter Dairying

A NORTH DAKOTA dairyman gives these reasons in support of his belief that winter dairying is more profitable than the practice of drying off cows in the fall and roughing them through the winter:

Cows that freshen in the fall will produce more milk during the year than those freshening in the spring, and the largest production comes when prices are highest and labor the cheapest.

The drying-off period comes in the late summer when other work is most urgent, flies are the worst, and pastures the shortest.

On many farms cows can be milked during the winter without any extra labor, whereas help is required when the heaviest flow is during the summer.

Silage—which is a good deal like pasture—supplemented with alfalfa hay and some grain makes the cost of winter feeding moderate.

Kansas Dairy Progress

THAT Kansas is developing into a dairy State is indicated by the increasing number of cream separators. The official count is 77,168 for 1916, as against 70,259 for 1915, an advance of nearly 10 per cent.

Silos also have become more numerous. There were 11,343 silos in Kansas on March 1, 1916, while twelve months before the same canvassers reported 9,712. The present figures give an average of more than 100 silos for each county.

THE NEW DE LAVAL

A Bigger and Better Cream Separator for the Same Money



THE FARMER who buys a De Laval this year will get bigger and better value for his money than ever before.

Not only will he get a better machine, a simpler machine, a machine that will skim even closer than any previous De Laval, but he will get a machine of larger capacity.

And the price has not been increased one cent.

Just think what that means to cow owners in the face of rising prices on almost everything else the farmer has to buy, including other cream separators.

Only the tremendous volume of De Laval sales makes it possible to give the farmer more for his money when others are giving less.

The NEW De Laval is the culmination of nearly forty years of experience and development by the largest and oldest cream separator concern in the world. It represents

The greatest improvement in separator construction in the last thirty years

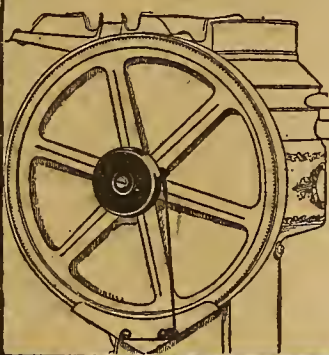
If you are trying to get along without a cream separator, or with a half-worn-out or unreliable machine, why not get a NEW De Laval NOW and stop your cream waste? You don't need to count the cost, because the De Laval will soon pay for itself.

There is a De Laval agent near you who will be glad to explain all the improvements and advantages of the NEW De Laval, and who will set and start a machine for you on your farm and let you try it for yourself.

If you haven't the spare cash right now, that need not stand in the way of your having the use of a NEW De Laval the rest of the winter. We have an arrangement with De Laval agents which makes it possible for any reputable farmer to secure a De Laval on the partial payment plan—a small payment at the time of purchase and the balance in several installments—so that your De Laval will actually pay for itself while you are using it and getting the benefit from it.

Why not see the nearest De Laval agent at once? If you do not know him, write to the nearest office for any desired information.

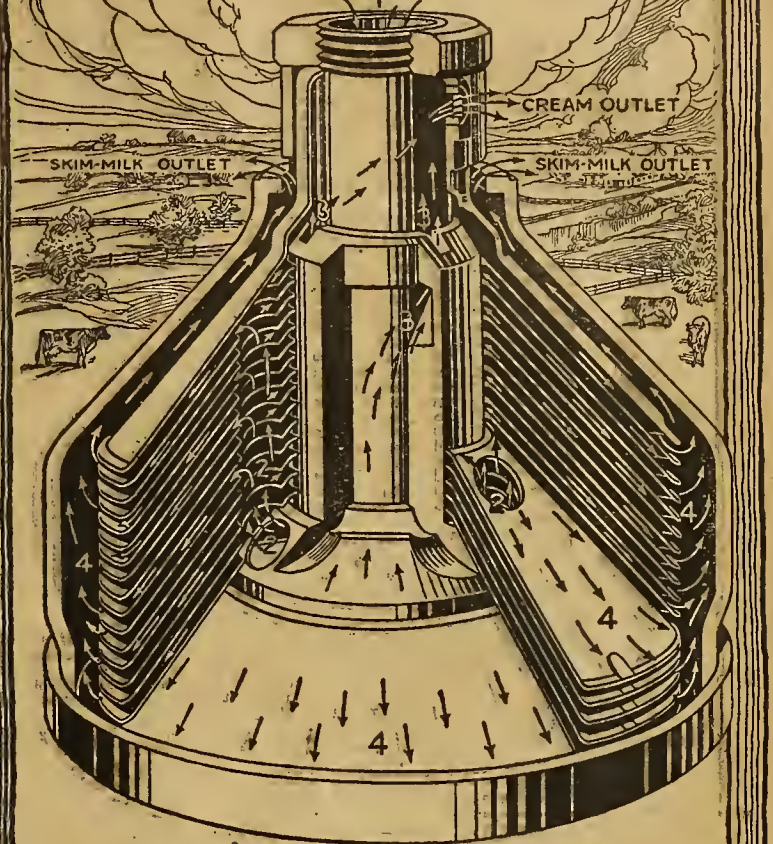
Every NEW DE LAVAL is now equipped with a Bell Speed-Indicator



The "Warning Signal" which insures proper speed and uniform cream

Because nine people out of ten turn the separator handle too slowly and because this always means loss of cream and cream of uneven thickness, every cream separator should be equipped with a reliable speed-indicator.

Every NEW De Laval is now so equipped: The De Laval Bell Speed-Indicator is simple and accurate. No matter who runs your De Laval, the "warning signal" will tell you when the speed is not right. You hear it and do not need to see it.



THE NEW SELF-CENTERING DE LAVAL BOWL

Some of the points of superiority of the NEW DE LAVAL

The New De Laval bowl design and the new method of delivering the milk into the discs give increased capacity without increasing the weight or size of the bowl or increasing its speed. The incoming whole milk is delivered beyond the cream wall, and this, in conjunction with the improved design of the bowl, makes possible closer skimming than ever before, especially under the more difficult conditions of separation, such as skimming a very heavy cream or separating milk below usual temperature.

The much lower speed of the De Laval than other cream separators (in most cases from one-half to one-third less) insures minimum wear of gears and much longer life of the machine.

The New De Laval concave-bottom, self-centering bowl is so designed and so supported by the detached spindle that it will run true and do perfect work even after long wear, the importance of which every user will appreciate.

There are fewer discs in the New De Laval bowl, and all discs are unnumbered and are interchangeable.

New Catalog will be mailed upon request

THE DE LAVAL SEPARATOR CO.

165 Broadway, New York 29 E. Madison St., Chicago
50,000 BRANCHES & LOCAL AGENCIES THE WORLD OVER

By reason of its simpler construction and the fewer number of discs, the New De Laval bowl is more easily washed and cleaned.

All New De Laval are automatically oiled, every moving part of the machine being bathed in a constant film of oil. There are no oil holes anywhere on the machine, and the sight feed oil cup on the top of the frame provides for a constant supply of fresh oil.

The gears, pinions and other moving parts of the De Laval are exceedingly simple in arrangement, substantial in dimensions and always interchangeable.

The De Laval tinware is sturdy and heavily tinned, well suited for long and hard wear, and easy to clean.

The low speed of the De Laval bowl, in combination with greater capacity for a given size and weight of bowl than is found in other separators, and the automatic De Laval oiling system, make the De Laval the easiest cream separator to turn.

GIVEN Stem wind and set watch, guaranteed 5 years, for selling 20 art and religious pictures or 20 pkgs. post cards at 10c each. Order your choice. GEO. GATES CO. Dept. 220 Chicago



This Book and This Bottle Makes Him \$800

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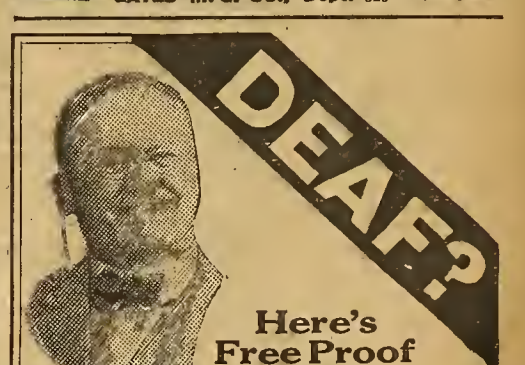
"The Big Desire in Every Man

Is to own a few acres of land," says Jacob Biggle in his characteristically interesting article in the February issue of The Farm Journal. Some other worth while remarks, too—about the age-old question of "Land for the landless" and our first President who was also a farmer. Read this article! Subscribe to The Farm Journal! The boiled-down, all-cream, chaffless farm paper. Makes life easier for Farm Folks. Goes into nearly 1,000,000 farm and village homes. Appeals to every member of the family. Only \$1 for 5 years. Money back any time. Send for free copy February issue and free copy of 1917 Poor Richard Almanac.

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The New Galloway Sanitary Cream Separator is as good in the parts you cannot see as in the ones you can see. Built like the "one hoss shay"—good in every part. Built for service—not merely to sell. You do not actually buy it until after you try it. If you find it is not as good as we say it is, send it back after trying it for 90 days—180 milkings! Get the last cent of profit out of your feed by skimming with a New Galloway Sanitary! Be one of that big army of farmers and dairymen who have found this separator the best definition of real dairy economy and profit.

SEPARATOR PERFECTION AT LAST!

That's it exactly—at last! The New Galloway Sanitary Separator was not built in a day—nor a year! Expert designers and engineers worked on it for three years after we were sure it was right, and they are still at it. If any part can be simplified they'll find a way to do it. If the manufacturing cost can be reduced our efficiency experts will reduce it and you'll get the benefit not only in high quality, but in good service and low price. This machine has stood every imaginable test and never flinched. It combines in the simplest, most practical and most effective way the best of the old and the best of the new ideas in separator building.

LOOK AT THIS BOWL!

Nothing freakish about it, just the plainest kind of cream separator common sense. All parts are nearly smooth as they can be made. No sharp corners or raw edges to break up the globules of butter fat. Separating discs entirely separate from each other. Every drop of milk subjected to the full skimming force of the bowl. Milk so distributed in this bowl that every disc gets its share to skim, no more, no less. No flooding in the top of the bowl, no conflicting currents in the bottom. That is the big reason why so few discs skim so much milk. Skimming capacity not guessed at, but guaranteed, and not overrated to make the price seem lower! Its low skimming speed is only one of its many valuable and exclusive features. These and many other equally important features make the New Galloway Sanitary Separator the choice of wise and discriminating farmers and dairymen who want the best and will be satisfied with nothing less.

GET THIS BOOK NOW!

It is chock full of dairy wisdom. A meaty, exact, concise, truthful book about cream separators, and how they are built. It tells why by selling direct I can make a machine, as good or better than many high priced separators sold through other systems, for less money saving you from a third to a half of the prices usually paid. It tells the whole story. It tells the truth. That's why I want you to get it. Ask for it today and we'll send it to you by return mail without any obligation on your part. A postal gets it. Please mention separators when writing.

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393 Galloway Sta. Cream Separator Mfg. Specialists Waterloo, Iowa

\$39⁹⁰
Buys the 375 lb. size. Three other good sizes—from 500, 750 to 950 lbs. skimming capacity per hr. Shipped from Waterloo factories, St. Paul, Kansas City, Chicago, Council Bluffs

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Upward **American Cream SEPARATOR**

Thousands In Use giving splendid satisfaction justifies investigating our wonderful offer: a brand new, well made, easy running, easily cleaned, perfect skimming separator only \$16.95. Skims warm or cold milk closely. Makes thick or thin cream. Different from picture, which illustrates our low priced, large capacity machines. Bowl is a sanitary marvel and embodies all our latest improvements. Our Absolute Guarantee Protects You. Besides wonderfully low prices and generous trial terms, our offer includes our—

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Whether dairy is large or small, or if you have separator of any make to exchange, do not fail to get our great offer. Our richly illustrated catalog, sent free on request, is a most complete, elaborate and interesting book on cream separators. Western orders filled from Western points. Write today for catalog and see our big money saving proposition.

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without laying up your horse. Does not blister or remove the hair. ABSORBINE penetrates quickly and is healing, cooling and soothing—strengthens and invigorates tired, lame muscles and tendons—alays pain and inflammation—reduces soreness and lameness.

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Mr. Fred White, Box 676, Payne, Ohio, writes: "I purchased a bottle of your ABSORBINE and used it as you directed. The puff had disappeared before I had the bottle quite all used up."

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keeps your stock in good condition. Full directions in package will show you many uses for every member of the barn yard family.

Thousands of farmers indorse Sloan's Liniment for pains and aches, sprains and bruises. At all dealers, 25c., 50c. and \$1.00 a bottle. The \$1.00 bottle contains six times the 25c. size.

Incorrect Thermometer

By Chas. E. Richardson

ABOUT a year ago I began to receive from some of my butter customers complaints such as, "Your butter tastes strong lately." "The last lot of butter you brought me didn't keep well." "Your butter has a cheesy taste." Of course I was surprised and somewhat put out, for I had the universal feeling that seems to be common among farm butter makers that my butter was all right. But I told each one that I was sorry, and I would look into the matter, and if they discovered any more butter wrong to let me know.

Well, I took special pains in making the butter, but still there came complaints. I could not understand why the butter should keep on being strong, for so far as I could see I was making it according to the best methods. I was in despair. I made it correctly, yet—it came wrong.

I was ready to give up, thinking perhaps there might be something mysterious after all about it. The strange part of it was that up to this time my butter had been of good quality. Finally I took my dairy thermometer and compared it with the house thermometer that we kept on the front piazza. To say I was surprised is stating it lightly. I found that the dairy thermometer which I used in butter-making registered 15 degrees too low. A little of the liquid was stuck in top of the glass, thereby shortening the reading.

Then I came to realize why the butter came strong. When my ripening temperature registered 75 degrees according to the thermometer, the actual temperature was 90 degrees, a condition which caused the cream to be overripe. Consequently the butter made from it became rancid quickly, though it seemed all right when I delivered it.

Furthermore, the churning temperatures had also been too high on account of the incorrect thermometer. This had caused the butter to come too quickly, to be too soft, and as a result the large granules incorporated so much butter-milk that the butter had poor keeping qualities. Well, I hunted up the address of a reliable dairy-supply house and got the very best guaranteed dairy thermometer to be had. Although I paid a good price for it, the thermometer was cheap in the end, for I have not had any complaints since, and I cannot supply the demand for my butter.

I had always been taught that experience is the best teacher, and as I knew I was making the butter absolutely correctly before I found my trouble, I felt that those who complained were criticizing unfairly or else I had never learned to make butter properly. It was a most uncomfortable feeling to have. But now I have come to the conclusion that good tools and equipment is as important in butter-making as in any of the big farm operations.

WEIGHING the milk of each cow takes but a little time, and you will be surprised to find how interesting the monthly totals are.

Warm the Drinking Water

By D. B. Claypool

WHEN the famous dairy cow, Missouri Chief Josephine, was producing 100 pounds of milk a day, she drank from 216 to 307 pounds of water daily. This water had been warmed to 80 degrees Fahrenheit, or about as warm as water in a tank becomes in midsummer. Considering that milk normally contains about 87 per cent of water, it is impossible for any cow to produce large quantities of milk without drinking an abundance of water. A cow that has gone dry may, on the

other hand, drink no more than 12 or 15 pounds of water a day, and if even a good dairy cow giving a normal flow of milk is compelled to drink ice water, she will drink fully 10 pounds less than if the water had been warm. Cold water affects the milk flow in two ways. First, the cow doesn't drink enough water fully to satisfy both her normal body functions and her natural ability to give a large milk flow. Secondly, ice water in a cow's stomach temporarily



Ice-cold water temporarily stops digestion and milk secretion. Warm the water and save feed

stops digestion and milk secretion. As a result, she shrinks in her milk.

Ice-cold drinking water is detrimental to profitable winter dairying under all circumstances, but especially in the case of highly bred cows. Coal or wood burned under a tank heater is a cheaper fuel than high-priced dairy feeds in cows' stomachs.

Lumpy Milk Again

By B. F. W. Thorpe

"A TWELVE-YEAR-OLD cow last fall showed the peculiar trait," says a Kentucky dairyman, "of being hard to milk out of one teat. A little later she became easier to milk, but the milk was lumpy. Now I have a young cow with her first calf, which is six months old. She is also giving lumpy milk. What shall I do?"

Always milk a diseased cow last. That will prevent the disease from being carried on the milker's hands to the well animals. In being treated for hard milking the first cow mentioned was probably made worse by instruments that were not sterile. The unclean instruments carried germs to the teat, which led to the lumpy condition later on. The second cow has undoubtedly been affected by similar germs carried from the cow first affected. Under the circumstance it would be best to call a graduate veterinarian and have him make a careful diagnosis, also examine the other cows in the herd.

Speed in Milk-Hauling

By Robert L. Winters

THE ever recurring problem of frozen milk in winter and sour milk in summer may in a measure be solved by adopting methods similar to those used by the city dealers who are turning to motor transportation. But where a large dealer employs a fleet of large trucks, the dairy farmer will find an outfit of the kind illustrated quite satisfactory for his use. On good roads a speed of 15 miles an hour may be safely maintained. In hot, cold, or dusty weather a tarpaulin over the cans will give considerable protection.

There is also a personal side to the matter, for the driver rides in greater comfort in cold weather, and he is less time on the road.



An outfit of this kind saves considerable time in milk-hauling when roads are good.



Live Stock

Work-Horse Values

By W. S. Blake

EACH year sees greater discrimination against and less demand for inferior horses, both large and small, and a corresponding increase in value of horses of three kinds—wagon horses, chunks, and drafters. Horses of these three classes are derived from draft breeds.

Wagon horses weigh from 1,260 to 1,500 pounds, and show style, action, finish, and substance to a marked degree. Chunks weigh from 1,350 to 1,600, and are, as the name implies, compactly built, averaging about two inches less in height than wagon horses of equal weight. They, too, must show plenty of quality, action, and especially substance, to sell well. Drafters weigh from 1,600 pounds up—the bigger the better, if they have style, substance, action, and finish and are snappy movers.

Good horses of these three classes have been selling at prices ranging from \$175 each for light wagon horses to \$350 each for the heavy drafters, during the last year. Contrary to the general opinion, stockyard records show that there has been a gradual increase in the selling value of these three classes in the last ten years.

Deeper tillage and heavier machinery have created a demand for greater motive power, and experience has shown that the horses of the three classes—wagon horses, chunks, and drafters—especially the heavier ones, are the most satisfactory. Another advantage in raising these three classes of horses is the fact that they can be put to work when three years old, and worked for a few years, increasing enough in value each year to make the service they render absolutely free. This is the experience of many persons, and anyone who understands horses can duplicate the experience.

The most desirable horse for the average farm work, then, is the one that renders efficient services, increases enough in value while rendering this service to pay for his keep, and finds a ready market when fully mature and ready to go. Well-made horses, weighing from 1,500 pounds up, with style, substance, quality, and action will do these things if they are bred and handled properly.

Peanuts and Cheap Pork

By R. K. Phillips

ONE great difficulty that has confronted the farmers of the Southwest in producing pork has been the uncertainty of the corn crop. Droughts and other unfavorable weather conditions make the average yield of corn in both Texas and Oklahoma low, and corn has been considered an almost indispensable feed for hogs. Now another crop that is much more dependable is rapidly taking the place of corn.

There are thousands of acres of Spanish peanuts luxuriating in the Southern sunshine where there were formerly great fields of cotton and corn.

There frisky Duroc, Tamworth, Berkshire, and Poland-China pigs are growing up in lots and pastures that will be fattened on peanuts this fall. Last year there were hundreds of cars of peanut-fed hogs on the Fort Worth market, and this fall and winter the number will be enormously increased. These hogs will be fed two or three months on peanuts, and then topped off with corn or maize for from four to six weeks, the latter being necessary to harden the meat.

It was stern necessity that forced Texas farmers to abandon cotton and take up the peanut-and-hog combination. In many sections of the State the fields became so badly infested with boll weevil that cotton was no longer a profitable crop. Experiments on a limited scale with peanuts had shown that they would produce from 30 to 60 bushels to the acre. Pioneers in the business started out to demonstrate what could be done by feeding the nuts to hogs. After carefully checking up on the cost of pork production it was announced that peanuts could be sold to the packing houses by the porker route at from 75 cents to \$1 a bushel. Land that had been making from \$10 to \$20 worth of cotton each year was planted in peanuts, and made from \$25 to \$40 an acre.

Peanuts Resist Drought

Last year Comanche County, Texas, which until a few years ago had grown hardly any commercial crop except cotton, made more than half a million bushels of peanuts. This year there are a dozen counties west and southwest of Fort Worth that will produce from a quarter to a million bushels of peanuts. That section hasn't any special monopoly on the peanut industry, for they are being grown all over Texas and Oklahoma, but not on quite such an extensive scale as in the locality mentioned.

The peanut is a drought resister, and there is hardly a summer so hot and dry that it will not make a fairly good crop. When the dry, hot days come it will wilt and look as if it was going to shrivel up, but whenever a rain comes it starts to growing and putting on nuts again. It may be planted from April until June, and is usually harvested in October or November.

Skillful Blanketing

By Ben H. Hart

NOW is the time to look well to the comfort of our dear old friend, the horse. Blanketing these cold days is not merely a matter of comfort to the horse, but may also keep the horse from becoming sick.

Furthermore, the man who is too unthoughtful to blanket his horse is not worthy of the services he receives. I have noticed, however, that few people know how to blanket a horse with any satisfaction, or unblanket them either. There is no excuse in having the blanket so tangled and out of shape you can't tell which way it goes in the daylight, much less in the dark, and freeze your fingers straightening it out. Keep your blanket folded properly and you can blanket your horse in a jiffy.

The blanket should be folded as follows: The end over horse's neck should be folded back until it is even with the end over horse's hips; then, keeping these ends even, pull the blanket sideways, grasp it in the middle, a hand on each side, and fold it again. Now it is off before you know it. Having the blanket thus folded, you can easily blanket a horse.

Unfold once, throw over horse's hips, keeping the neck strap behind and on top side, bring the strap end back over horse's neck, and you have it on.



I want to tell you that **WORMS** more than anything else keep animals from thriving.

Dr. Hess Stock Tonic Expels Worms

Spring will soon be here. Get your animals in condition. Start in now, first get rid of all worms with Dr. Hess Stock Tonic. Then they are in shape for you to enrich the blood, give them better digestions. Horses on dry feed are likely to have stocky legs—and their bowels need cleaning out. Dr. Hess Stock Tonic will get them ready for the hard spring work. Cows should have it before calving time and to prepare for full milking. Feed it to the brood sows, it will tell on the litter. This is the true live stock gospel:

CONDITION ALL YOUR ANIMALS NOW

So sure am I that Dr. Hess Stock Tonic will put your animals in a thriving condition, make the ailing ones healthy and expel the worms, that I have authorized my dealer in your town to supply you with enough for your stock, and if it does not do as I claim, return the empty packages and my dealer will refund your money.

Never peddled. Sold only by dealers.

Dr. Hess Poultry Pan-a-c-e-a
Feed it to your hens and get more eggs—more strongly fertile eggs. Weak parent stock is sure to give you weak chicks that cannot live. Chick diseases make greatest ravages on the weaklings. Pan-a-c-e-a conditions, gives strength and vigor. Costs a penny for 30 fowls per day. 1½ lbs. 25c; 5 lbs. 60c; 12 lbs. \$1.25; 25-lb. pail, \$2.50 (except in Canada and the far West). Guaranteed.

Dr. Hess Instant Louse Killer
Kills lice on poultry and farm stock. Provide your hens with a dust bath, to which add Dr. Hess Instant Louse Killer occasionally. The hens will do the rest. For lice on stock, with one hand rub against the hair and with the other sift the Louse Killer. Rub thoroughly into the skin. 1 lb. 25c; 3 lbs. 60c (except in Canada).

DR. HESS & CLARK, Ashland, Ohio

Write Dr. Hess about any live stock trouble, enclosing 20 stamp. He will advise you free.

Get All the Cream

YOU cannot expect to get all the profit from your cows unless you have a separator that skims clean. Why don't you make up your mind here and now to buy a **Primrose** or **Lily** cream separator? Then if your checks are not big enough, you will know that the trouble is with the cows, not with the separator.

The president of the Iowa Federation of Cow Testing Association says that of all the separators in use in his association, and they are many, the **Primrose** skims closest. It leaves less than one-hundredth of one per cent of the cream in the milk.

The **Lily** skims just as close. Neither one wastes any cream. With prices of everything as high as they are now, to waste cream is little short of a crime.

Yes, you can buy separators for less money. You can also pay more. But you cannot buy a closer skimming machine, one that runs easier, or one that will skim clean for a longer time. Do not delay. The longer you put off buying a **Primrose** or **Lily** cream separator, the more you lose. Get one of these machines, and your separator troubles will disappear as if by magic. Drop us a card for catalogues and full information.

International Harvester Company of America

(Incorporated)
CHICAGO

U S A

Champion Deering McCormick Milwaukee Osborne Plano



The hogs are fed peanuts for two or three months and then topped off with corn to harden the meat.



Here's Where it Tells.

It isn't a question of sentiment whether or not your cows are in the pink of condition—but it does make a big difference in your bank account. Since you are keeping cows for milk instead of for meat, better see to it that their milk-producing organs are kept working normally.

At the first sign of decreasing milk-flow, look for the cause. Ten to one it is due to some trouble with the digestive or genital organs, and such disorders are best set right by the use of Kow-Kure, a cow medicine backed by twenty years of success. Try Kow-Kure on your poor milkers and watch results. Hundreds of doubting cow owners have been convinced that this old remedy has no equal for the prevention and cure of Abortion, Barrenness, Retained Afterbirth, Milk Fever, Lost Appetite, Scouring, Bunches, etc. Buy Kow-Kure from your feed dealer or druggist; 50c. and \$1.00.

Write for our free treatise, "The Home Cow Doctor"

Dairy Association Co.
Lyndonville, Vt.

KOW-KURE



(Sold with or without elevator)
Crush ear corn (with or without shucks) and grind all kinds of small grain. Have conical-shaped grinders. Different from all others. Handiest to operate and Lightest Running (Our circular tells why)
Ten sizes, 2 to 25-horsepower.
FREE Folder on "Feeds and Manures."
J. P. BOWSHEER CO., South Bend, Ind.



"Good to the Last Drop"

Raise Your Calves on Blatchford's Calf Meal and Sell the Milk

More calves have been raised on Blatchford's Calf Meal than on all other milk substitutes combined.

100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk. Prevents scouring and insures the early maturity of sleek, handsome calves. It is steam-cooked and no trouble to prepare or use.

Write for Pamphlet "How to Raise Calves Cheaply and Successfully with Little or No Milk." At dealers, or Blatchford Calf Meal Factory, Dept. 3, Waukegan, Ill.

Pull Big Stumps by hand



Clear your stump land cheaply—no digging, no expense for teams and powder. One man with a K can rip out any stump that can be pulled with the best inch steel cable. Works by leverage—same principle as a jack. 100 pounds pull on the lever gives a 48-ton pull on the stump. Made of Krupp steel—guaranteed against breakage. Endorsed by U. S. Government experts.

HAND POWER Stump Puller

Write today for special offer and free booklet on Land Clearing.

Walter J. Fitzpatrick

Box 48

182 Fifth Street
San Francisco
California



Live Stock

The Letters You Write

By W. S. Blake

THE standing and the business ability you have are judged largely by the business letter you write. This is particularly important if you are raising pure-bred live stock or poultry.

The amount of business transacted by letter in this country has increased enormously and the importance of a good business letter is becoming widely realized.

Many persons engaged in raising and selling pure-bred chickens have excellent catalogues, but spoil their sales by the poor letters they write. A good business letter also gives a person an advantage in dealing with the houses from which he orders.

If you wish to get the most out of your letters, the letter paper and the letterhead you use should be simple and businesslike. The language used should be simple and forceful—not overdone, and indicative of the kind of business you are engaged in.

Alfalfa for Horses

By Thomas Keene

ALFALFA, if properly fed, is a better and cheaper food for farm horses than prairie hay. Experiments have shown that horses fed rations of alfalfa and corn were kept in better condition than those fed prairie hay and corn, or prairie hay, oats, and corn.

The alfalfa and corn combination was less expensive than the other combination. Results from feeding horses on this ration showed that it required 20 per cent less grain and 25 per cent less hay, making the alfalfa ration 25 per cent cheaper than the prairie-hay ration.

Alfalfa must be considered as a concentrate and fed as such in order to get the best results. Not more than 12 pounds for each 1,000 pounds of live weight should be fed. Other roughage, such as sorghum, corn fodder, kafir, or Sudan grass, may be fed with the alfalfa.

To make the best horse feed, alfalfa should not be cut until it is in full bloom, and should be carefully cured in order to keep it from becoming moldy or dusty. Dusty hay should not be fed under any conditions.

Mohair \$16 a Pound

By Ray D. Penny

WOOL of good quality is now as good as gold. The same is true of mohair. Indeed, a few fancy-quality mohair fleeces represent a nice little bank account. The record of the most valuable mohair fleece belongs to an Oregon Angora goat, owned by F. Pierce, who raised this phenomenally valuable animal, and has been breeding and raising Angora goats since he came to Oregon twelve years ago. He has specialized in breeding for long mohair production. Previous to shearing this famous fleece from his prize goat, Dodo, he had clipped \$50 fleeces. Last spring he sheared from Dodo a fleece that had

been growing three years and seven months.

The fleece weighed 22½ pounds and measured 41½ inches (length of strand). This phenomenal fleece sold for \$372, or at the rate of over \$16 a pound for the entire fleece.

The fleece on this goat at the end of its first year was braided and tied over the goat's back, like a schoolgirl's hair. This kept the mohair from being pulled out or broken when the goat was running on range, and every six months thereafter the braids were taken down, straightened out, and rebraided.

Mr. Pierce exhibited the goat at the Panama Exposition, and while there the fleece was clipped and sold to the representative of a New York wig-making concern for the price above recorded.

There has come to be a considerable demand for mohair of very long, unbroken strands for use in making wigs, switches, and theatrical make-ups. In a few cases \$20 a pound has been paid for mohair of extreme length. To be suitable for such use, the mohair must be at least 22 inches in length.

Demand Exceeds the Supply

Mohair has now made a staple place for itself in the manufacture of clothing and for special purposes. It is used to give body and durability to woolen cloth and upholstery of various kinds, such as plushes, children's furs, automobile tops, carpets, covering for car seats, etc. Over 60 large mills in this country are now buying mohair, and the demand exceeds the supply, since the war cut off the Turkish and South African supply.

Edwards County, Texas, claims over 300,000 Angoras within its borders. The climatic conditions in Texas, New Mexico, parts of Arizona, California, and Oregon are quite similar to Turkey, the original home of the Angora goat.

Northern growers clip their goats once a year, but in Texas and New Mexico they are usually clipped twice, unless the mohair is being grown especially for a fancy market. Since the Mohair Growers' Association was formed, the price has raised from about 20 cents to 40 or 50 cents a pound, according to the grade. The Angora Growers' Association has now more than 700 members, which is more than 75 per cent of all the Angora breeders in this country.

There is unquestionably a brighter future for the Angora goat in various sections of this country, where the land is broken and not adapted to culture. The mature Angora weighs not far from 100 pounds, in good condition. It does not equal the sheep as a meat-producing animal, but it will thrive better on weeds and brush than the sheep, and there is less discrimination against goat flesh each succeeding year.

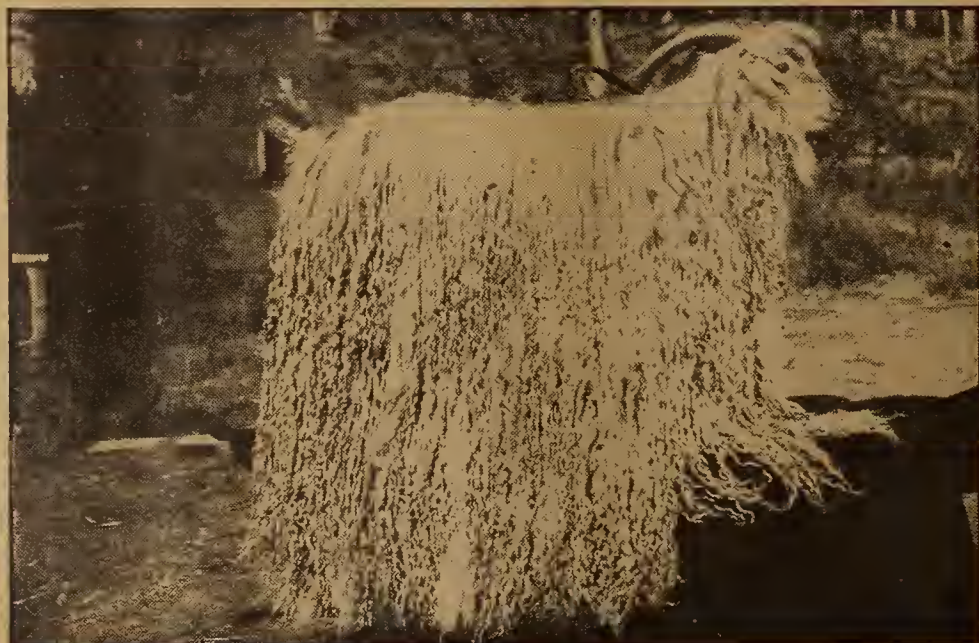
Tried Trapping, It Paid

By Lyman Hoyt

I HAD heard and read a great deal about trapping, but had never tried to take any fur-bearing animals myself. Finally my interest reached the point where I went to the store and purchased a dozen steel traps. Returning home I set them, and the next morning was rewarded with one muskrat.

Here in New York State there are mink, coon, muskrat, and skunk, and I have been successful in catching all but the coon, which is wary. At the end of the first season, I found that after deducting the price of the traps I had \$12.50 left.

Considering that the work was interesting and not difficult, I considered it a good investment when farm work is not pressing.



This is Dodo, the remarkable Oregon animal that produced strands of mohair measuring 41½ inches long. It was nearly a four years' growth



In Ag'in, Out Ag'in, Gone Ag'in!

The easy way to get a sure grip on the road is to carry a set of Easy-On-Chains. Even after you're stuck, Easy-On's are attached in a moment, without jacking or moving the car.

Easyon Chains

Grip like a Mud Hook
Ride Like a Bare Tire

Easy-On-Chains are the latest idea in chain construction. The gripping link is perfectly smooth and rounded next to the rubber and does not injure the tire. The spoke fasteners are leather covered and do not mar the paint.

Every car-owner should carry a set of these double-duty chains. They are packed in a small bag, eight to a set, four for each rear wheel.

Made In Three Sizes Per Set

Size 3½ fits 3 or 3½ in. tires, \$3.00
Size 4½ fits 4 or 4½ in. tires, 4.00
Size 5½ fits 5 or 5½ in. tires, 5.00

Sent parcel post or express prepaid to any part of U. S. or Canada. If you are not satisfied, return at our expense and we will refund full amount.

Dealers—Write for Quantity Prices. Ask also about Easy-On Truck Chains for solid tires.

THE WOODWORTH MFG. CORPORATION
Successors to Leather Tire Goods Co.
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Rose Auto Supply Co., 1765 Broadway.

AGENTS—Only One in the World

KEROSENE (Coal) BURNER

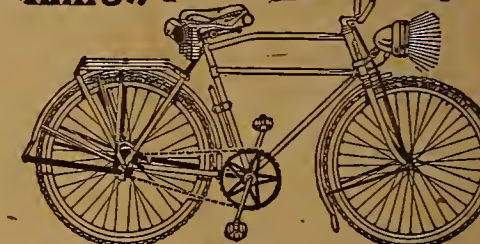
JUST OUT Fits in any cook-stove. Makes its own gas from Kerosene (coal oil). Gives every home a gas stove. Absolutely safe. Cheapest fuel known.

Wonderful Labor Saver Agents just coining money. Women wild about it. No more coal or ashes to carry. No more danger from gasoline.

Safe, Clean, Odorless, Cheap Every home a prospect. Low price makes quick sales. Easy to carry and demonstrate. Big profits. Your territory is open. Write today.

Thomas Burner Co., 2346 Gay St., Dayton, Ohio

The 1917 ARROW Electric Light



Great Bicycle Offer!

Write for catalog. Wonderful 1917 Arrow—new motorcycle type—shipped no money down. Pay small amount each month while you ride. Write for our special, rock-bottom offer. Free Thom Froof Non-Skid Tires, motorcycle stand; many new features. Send for free catalog.

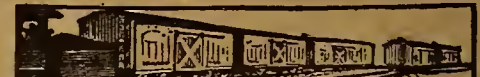
ARROW CYCLE CO., Dept. 4032, California & 19th St., Chicago, Ill.



AGENTS Wagon or Auto FREE

We are opening new territory and increasing our sales force. Great opportunity. If you mean business write today for details. Let us show you how to be independent, how to make more money, how others are making \$6 to \$8 a day working for us. No experience necessary. Our new plan offers a fine premium with every sale. Double value for one price. Housewives can't resist. We furnish our representatives with a wagon or automobile free by our new plan. No scheme—not a contest—just plain business. Territory going fast. Write quick while this special offer is open.

American Products Co., 8084 3rd St., Cincinnati, O.



IT TAKES 400,000 cars to carry American Fertilizers to Farmers and Planters every season. Forty per cent. of this is useless Filler requiring 160,000 cars! Insist on having less Filler and all high grades with Available Nitrogen, namely:

Nitrate of Soda

and thus cut freight bills.

Crop production from such Fertilizers means greater outbound tonnage for roads and bigger purchasing power for Farmers. Railroads and everybody would benefit.

Larger food crops thus grown would give increased prosperity to all. It is up to you, Mr. Farmer.

Send for "Cost of Available Nitrogen"

DR. WM. S. MYERS

Director, Chilean Nitrate Propaganda
25 Madison Avenue New York
No Branch Offices

Let Me Quote You Prices

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Blades are made of high carbon steel. Adjustable scrapers, hard maple bearings, hard rollers and transport trucks if you want them. We also make complete line of Tractor Discs. Free trial for 80 days. Return it at our expense if not satisfied. *We pay freight both ways.* Send a postal card for full details on farm tools and supplies. Get my big Free Book and low money-saving prices today.

Ask the Plow Man with
Monmouth Plow Factory
293 S. Main Street
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Free Trial 30 Days **Freight Prepaid**

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Guaranteed for Five Years

Blades are made of high carbon steel. Adjustable scrapers, hard maple bearings, hard rollers and transport trucks if you want them. We also make complete line of Tractor Discs. Free trial for 80 days. Return it at our expense if not satisfied. *We pay freight both ways.* Send a postal card for full details on farm tools and supplies. Get my big Free Book and low money-saving prices today.

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Better Quality

At Wholesale Prices

Direct from manufacturers, who can save you \$10 to \$30 on the best range made. Newest designs—white enamel splashers, etc. Write for Catalog. Take a Kalamazoo on our 30 day trial plan and see what you can save. We pay freight—quick shipment. Ask for Catalog No. 183.

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Manufacturers
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A Kalamazoo Direct to You

Year of Years to Plant Potatoes
Let the Aspinwall Do the Work

The only correct drop. A one-man, Automatic Potato Planter. Saves expense of extra man. Does all the work—all the time. Plants more acres per day—opens the furrow, drops the seed, any size, any distance, marks the next row—all in one operation. 65,000 now in use. Plant the Aspinwall way.

Aspinwall No. 3 Potato Planter

Corn, pea, bean and fertilizer attachments furnished when wanted. Send today for FREE BOOK giving facts how to plant for profit. Cutters, Planters, Sprayers, Diggers, Sorters.

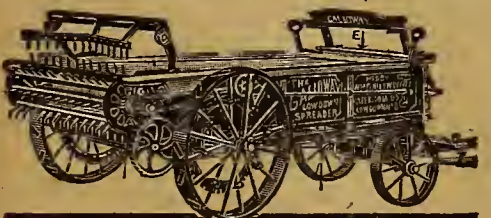
Aspinwall Manufacturing Company
552 Sabin St., Jackson, Mich.
World's Oldest and Largest Makers of Potato Machinery

CLOVER

\$8.40 Per Bu. **TESTED—GUARANTEED SATISFACTORY**

Biggest Bargain this season. Prime quality, absolutely Guaranteed. Sold subject Government test. Don't fail to write for Free Grass Seed samples. We want you to see our quality, as we can save you money. Don't pay two profits. Sweet Clover, \$3.90; Timothy, \$2.25; Alsike and Timothy, \$4.00. Other seeds in proportion. No risk buying from an old established Seed Company. Your money back if you want it. Satisfaction our first aim. Clover crop short. Write before advance and compare our seed with the best. You will save money. Send today for free samples and big 100-page catalog. Everything guaranteed.

A. A. BERRY SEED CO. Box 842 CLARINDA, IOWA



SPREADER PERFECTION

Comes in Galloway's new 1917 Models No. 8, No. 5 and No. 1A. Their light draft, new wide-spreading adjustable V-rake; low down, only 42 in. high at center of hop; all four wheels under the load; improved all steel heater; solid bottom; endless apron; positive force feed, make Galloway machines the peer of all spreaders on the market today. An all steel tongue, double chain drive, roller feed, all steel wheels, seat folds out of way—these and many other exclusive Galloway features, protected by Galloway patents, back up what we say about these modern manure spreaders. My patented automatic stop uniform clean-out push-board, worth \$10 extra on any spreader—exclusive on the Galloway, but costs you nothing extra. Remember my hook tells you how I sell spreaders on

Six Selling Plans—Cash or Time

Don't buy a spreader of any make or kind until you have read this book and tried a genuine Galloway 1917 model WITHOUT OBLIGATING YOURSELF in any way. "THIRTY DAYS' TRIAL" and returnable to us WITHIN ONE YEAR if not perfectly satisfactory. Remember we manufacture this spreader in our own FACTORIES and sell it direct from FACTORY TO FARM. Do not confuse the Galloway spreader with low priced machines made to sell for a price which are all cheap, worthless imitations. Thousands upon thousands of Galloway spreaders in actual use back up every statement we make. Get this new 1917 book. Read it! It will give you complete particulars and details of all the spreaders and spreader boxes that we make. Ask for it now. A POSTAL GETS IT.

Wm. Galloway, Pres.
WM. GALLOWAY COMPANY
Manure Spreading Specialists
399 Galloway St., Waterloo, Iowa

Good-Health Talks

By DAVID E. SPAHR

I am very much troubled with cold feet. If I retire at 9 P. M., my feet start to get very cold at 5 A. M. I do not perspire very much in the summer.
S. M. D., Ohio.

FOR your cold feet, wash them in cold water at night, and rub them briskly until reaction is established. Your circulation gets weak in the morning hours.

For Falling Hair

My hair is falling out very fast. I use a good shampoo, wash it often. I have such nice auburn hair, I hate to lose it.
Mrs. C. E., Pennsylvania.

USE the following: Olive oil, three ounces; zinc benzoate, one dram; acid salicylic, thirty grains. Mix and rub into the scalp daily.

Disinfecting Clothing

Please state if there is any way in which to disinfect clothing, such as a man's overcoat, so as to be safe for another to wear.
M. M., Maryland.

YES. Soak in a solution of Johnson and Johnson's Camphenol. A small bottle is sufficient to make three gallons of the solution.

What to Do for Eczema

Have had eczema for a long time, and have taken all the remedies.
Mrs. W. S. B., Missouri.

YOU do not say where your eczema is located. If on the hands or face, or place where it is accessible, apply freely benzoinated collodion.

When You Eat Too Much

I am twenty-eight years old; two years ago I had an operation for appendicitis. Was better for one year. This year I have soreness and cramps across my stomach. Gas forms on my stomach after meals. I feel full, have sour taste in mouth, and suffer from throat trouble. I am a ravenous eater and crave something to eat all the time.
T. H., Iowa.

YOUR principal difficulty is that you are eating more than your stomach can digest and assimilate, because you are nervous. Eat simpler and plainer food and less of it.

Kidneys Too Active

I was troubled last winter with my kidneys acting eighteen and twenty times a day. Was better through the summer, but it is coming that bad again. I am fifty years old and in good health.
G. W. M., North Carolina.

TAKE one-half teaspoonful of sweet spirits of niter three or four times daily, in a glass of water.

For Rough Hands

My hands have bothered me for three months. The palms get rough and scaly, and they are very sore, but do not bleed. They crack a good deal. Can it be hard water?
Mrs. R. E. M., North Dakota.

KEEP your hands out of hard water and protect them at night with muton tallow, applied freely. Wash with tar soap.

Frost-Bitten Feet

Can you tell me what to do for frost-bitten feet?
I. T., Wisconsin.

APPLY benzoinated collodion if the skin is not broken.

Jaws Make Cracking Sound

My daughter is greatly troubled with her jaws cracking when she eats. They can be heard several feet away. Is there any danger of their getting dislocated, and what treatment would you advise?
Mrs. J. R. W., Pennsylvania.

I WOULD advise active and vigorous massage. Have her take calcium hypophosphite, three one-grain tablets after meals.

If Your Feet Itch

ITCHING feet are often due to hose carelessly washed or insufficiently rinsed. They should be washed more carefully than any garment worn, for the pressure of the shoe brings them into most intimate contact with the skin. The soap used should be mild, and every trace of it rinsed out before drying. Any foot trouble is an indication for frequent changes of hose. Have at least two good pairs of shoes, so that frequent changes may be made.

Stop Your Heavy Feed Expense

Waterloo Boy Kerosene Tractor

2774 Farmers Bought Waterloo Boy Tractors in 1916

Waterloo Gasoline Engine Co.,
4301 W. 3rd Ave. Waterloo, Iowa.

\$750

Pulls Three 14" Plows
Belt Power for 17" Silage Cutter or 24" Thresher

Strawberry Plants
All Kinds of Small Fruit Plants. The Great Everbearers, good stock. Reasonable prices. See our new Special \$2 Offer. 1917 Catalog Free. Write today.
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Hayes Hand & Power SPRAYERS
Fruit-Fog insures big profits. We make 50 styles of Sprayers; from small Hand to largest Power. Spraying Guide and big catalog FREE. Send postal.
HAYES PUMP & PLANTER CO., Dept. O, Galva, Ill.

450,000 TREES
200 varieties. Also Grapes, Small Fruits, etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Catalog free. LEWIS ROESCH, Box E, Fredonia, N. Y.

TIMOTHY \$2.25 PER BU.
SAVE MONEY—Buy Direct from Grower. New cleaned Iowa Grown Timothy, free from noxious weeds. Guaranteed Satisfactory or money refunded. Write today, 100-page catalog and Free Samples. Low prices on Clover and all grass seeds. Write before advance.
A. A. BERRY SEED CO., BOX 342, CLARINDA, IOWA

La Crosse Happy Farmer Tractors

LOW PRICE—GREAT VALUE

SO low in first cost and upkeep that any farmer can afford to buy one or more. Simple in construction—with highest quality materials. Only 1/3 the parts used by other tractors, 88% of weight on two drive wheels.

Write for Catalog La Crosse Happy Farmer Tractors are now doing great work in farmers' fields. Model "A" pulls 2 or 3 plows—1500 lbs. guaranteed drawbar pull—16 h. p. on all belt work—extremely light and simple. Use gasoline or kerosene. Model "B"—12-24 h. p. guaranteed—weighs only 8700 lbs. Many exclusive features. Burns kerosene perfectly—Hyatt Roller Bearings throughout. We have a distributor in your territory for prompt service. Write for catalog. Also get literature on the La Crosse Happy Farmer line of tractor-drawn implements.

MODEL "A"
8-16 H. P.
\$585.00

MODEL "B"
12-24 H. P.
\$735.00

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Live Dealer Agents Wanted

"That Red Ball Means More Days Wear"

When you see the Red Ball on the knee or sole of Rubber Footwear you can depend on the quality. You may know that it has comfort and fit and lasting wear.

"BALL BAND"

"Ball-Band" gives more days wear at less cost per day than any other Rubber Footwear you can buy. We know it—nine million wearers know it—55,000 reliable dealers know it. Ask your dealer for a pair of "Ball-Band" Light Weight Rubbers. They are of the highest quality and come in sizes for men, women and children.

If your dealer does not sell "Ball-Band" Footwear, write us and we'll see that you get the genuine. Anyway, write for "More Days Wear," an instructive booklet which shows how to get more days wear from your Footwear.

MISHAWAKA WOOLEN MFG. CO.
305 Water St., Mishawaka, Ind.
"The House That Pays Millions for Quality"

Alfalfa



Heaviest and most vigorous strains, producing 3 to 7 tons per acre—3 to 5 crops a year. Strongly recommended by all Agricultural Experiment Stations. Big money-maker. One of Wisconsin's Governors received \$2500 in hay from less than 30 acres by sowing our 20th Century Brand. Salzer's Northern Grown, carefully selected strains are adapted to varied soils.

Corn, Oats, Wheat, Barley, Speltz

Send Today for

Samples and Catalog

We lead in Grasses and Clovers. Never be satisfied until you have tried Salzer's Seeds. Our 20th Century strains are unexcelled.

America's Headquarters for Field Seeds
49th Year

Our handsome 1917, 184-page catalog and samples of any field seeds FREE. Send today.

JOHN A. SALZER SEED CO. BOX 119 LACROSSE, WIS.

WHITE SWEET \$3.90 CLOVER Per Bu.

BIGGEST MONEY-MAKER KNOWN—INVESTIGATE
The greatest forage plant that grows. Superior to all as a fertilizer. Equal to Alfalfa for hay. Excels for pasture. Builds up worn-out soil quickly and produces immense crops, worth from \$50 to \$125 per acre. Easy to start, grows everywhere, on all soils. Write today for our Big 100-page free catalog and circular about unharmed and scarified hulled sweet clover. We can save you money on best tested, guaranteed seed. Sample Free.
A. A. BERRY SEED CO., BOX 942 CLARINDA, IOWA

20 Packets Seeds—10c.

We want every reader to test "HARRIS SEEDS THAT HUSTLE." Send 10c. now—before you forget—for this mammoth collection. We send you 20 separate packets finest varieties—one each—of Beets, Carrot, Cabbage, Celery, Cucumber, Lettuce, Cress, Muskmelon, Watermelon, Onion, Parsley, Parsnip, Radish, Salsify, Spinach, Tomato, Giant Mixed Peppies, Calendula, Cosmos; also Children's Botanical Garden, a collection of flower seeds. With this collection we send rebate check for 10c and big catalogue of world's finest seeds.
HARRIS BROS. SEED CO., 232 Main St., Mt. Pleasant, Mich.

GOOD SEEDS

GOOD AS CAN BE GROWN
Prices Below All Others

I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K.—money refunded.

Big Catalog FREE

Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.
R. H. SHUMWAY, Rockford, Ill.

JAPANESE ROSE BUSHES

Five for 10c.

The Wonder of the World



Rose Bushes with roses on them in 8 weeks from the time the seed was planted. It may not seem possible but we Guarantee it to be so. They will BLOOM EVERY TEN WEEKS, Winter or Summer, and when 3 years old will have 5 or 6 hundred roses on each bush. Will grow in the house in the winter as well as in the ground in summer. Roses All the Year Around. Package of seed with our guarantee by mail, only Ten Cents.
Japan Seed Co., Box 206, South Norwalk, Conn.

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of every type—as well as Tanks, Silos, Roofing, Siding and all forms of exposed sheet metal work, give greatest service and resistance to rust, if made from

Apollo-Keystone COPPER STEEL GALVANIZED

Highest quality Galvanized Sheets manufactured. Actual time and weather tests have proved that these sheets last longest in actual service. Demand APOLLO-KEYSTONE in your Culverts, and accept no substitute. Look for the Keystone added below the Apollo trade-mark—it insures durability and lasting satisfaction. Sold by leading dealers. Every farmer and owner of buildings should have a copy of our booklet "Better Buildings," containing full information on formed metal Roofing Products, methods of application, etc.
AMERICAN SHEET AND TIN PLATE COMPANY, General Offices: Frick Building, Pittsburgh, Pa.

EVERYTHING for the GARDEN

is the title of our 1917 catalogue—the most beautiful and complete horticultural publication of the year—really a book of 208 pages, 32 colored plates and over 1000 photo engravings, showing actual results without exaggeration. It is a mine of information of everything in Gardening, either for pleasure or profit, and embodies the results of over seventy years of practical experience. To give this catalogue the largest possible distribution we make the following unusual offer:

Every Empty Envelope Counts as Cash

To every one who will state where this advertisement was seen and who encloses Ten Cents we will mail the catalogue

And Also Send Free of Charge

Our Famous "HENDERSON" COLLECTION OF SEEDS

containing one packet each of Ponderosa Tomato, Big Boston Lettuce, White Tipped Scarlet Radish, Henderson's Invincible Asters, Mammoth Butterfly Fanlies and Giant Waved Spencer Sweet Peas, in a coupon envelope, which, when emptied and returned, will be accepted as a 25-cent cash payment on any order amounting to \$1.00 and upward. With the Henderson Collection will be sent complete and detailed cultural directions.

PETER HENDERSON & CO. 35 & 37 CORTLANDT ST. NEW YORK CITY



Garden—Orchard

Spraying at High Pressure

By J. O. Cummings

THERE'S a wide difference between sprinkling and spraying. And in the light of recent experience, the use of considerable power in spraying appears to give best results, and also uses less spraying material.

For outdoor spraying, pressures as high as 300 pounds per square inch have been found to so atomize the spraying liquid that it sticks to the foliage better than where larger drops are used.

Poisonous gases of cyanide origin have been highly successful for fumigating citrus fruit in the West, but they require the trees to be enveloped in canvas. High-pressure spraying, on the other hand, forms such a fine mist that it seems to be practically as penetrating and enveloping as the gas, with the additional advantages of cheapness and reduced labor.

PRUNING of orchard fruit trees can be done at any time when the weather admits of comfortable working outdoors. Every tree pruned early will help avoid working overtime later.

New Tomato-Pruning

By Anna Wade Galligher

WE HAVE tried several different ways of pruning tomato plants. Doing the work by guess, so to speak, is worse than no pruning at all. During the past four years we have practiced a plan that so far has been successful in producing large yields of tomatoes from four to six weeks earlier than their usual ripening season.

For a long time we tried to get results by the use of several other methods, but gave it up and began to experiment. We claim originality for the most important points in pruning tomatoes, as shown in the accompanying picture.

We commence to prune when the plants start to branch. If the first branches which appear at the base are small and stunted-looking—as is usually the case—they are removed. We then leave from four to six good strong side branches as near the base of the plant as possible. Above these, all branches are removed from the main vine. When the side branches reach a height of from one and a half to two feet, according to the variety, and a sufficient number of buds and tomatoes have set, the tip of the vine is removed. When the remaining side branches are nearly as high as the center or main vine, and from two to four clusters of blossoms have formed upon each branch, the tips are all removed.

This causes a new growth of side branches. These appear in a very short time, but not all at once. Sooner or later a small branch will appear at the base of each leaf. We remove these as soon as possible, leaving intact all of the leaves which grow from the bearing branches. Do not strip the leaves from a tomato plant when removing the surplus growth. After the work is begun it is necessary to go over the patch

at least once a week to remove any growth that is not needed.

Remember, it is the unnecessary growth of the plant that retards the growth and ripening of the tomatoes.

We use only strong, vigorous growing tomato plants, never pruning in any case before setting in open ground. They are set quite deep, at least half of the stalk being underground. This insures better root development.

The plants are cultivated frequently. Nothing will respond more quickly to good cultivation than a tomato plant. Hand hoe, wheel hoe, and horse cultivator are used as often as necessary to keep weeds down and the soil in good condition. After the last cultivation, when the vines are quite large, we find it a good plan to cover the ground between the rows and close up to the plants with straw.



Knotty development of Russet Burbank caused by late irrigation or heavy rains following drought

Cedars Rust Apples

THERE are still people who refuse to believe that the apple rust is a disease caught by apple trees from red cedar trees. There is no doubt about the matter, however; the source of the infection has been conclusively shown time and time again.

People planting orchards in regions where there are red cedars should study immune and resistant varieties. The Winesap, Stayman's Winesap, Arkansas Black, Grimes' Golden, Baldwin, and Fameuse are among the excellent varieties which are either immune or resistant wherever the facts have been observed. Yellow Transparent is a good resistant summer apple. The Wealthy variety is everywhere very susceptible.

We give no directions for the spraying. That is a matter which every orchardist should study between now and the time the "cedar apples" begin to send out their spores next spring.

The most effectual remedy is for neighbors to combine their efforts and grub out and destroy all cedar trees found growing within half a mile of their orchards.

Spraying with Bordeaux mixture, lime-sulphur, or a combination of lime-sulphur solution and copper sulphate will insure a crop of apples when the season is favorable even where the cedar-rust infection prevails.



Tomato plant properly pruned for early and heavy production, according to method worked out by Mrs. Galligher

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GROW BUMPER CROPS

BUCKBEE'S "Full of Life" Seeds
are of Highest Quality. None better at any price. World Beating Prize Winners at all County and State Fairs.

BUMPER CROP COLLECTION Made to Build New Business

Radish—Earliest of All, worth 10c	Lettuce—Sensation, worth 10c
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Celery—Long Keeper, worth 15c	
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This Collection of World Beaters worth \$1.25

Guaranteed to please. Write to-day; mention this paper

SEND 10c to help pay postage and packing and receive this valuable Collection of Seeds, postpaid, together with my big, instructive, beautiful Seed and Plant Book. Tells all about Buckbee's Famous "Full of Life" Seeds, Plants, etc.

H. W. BUCKBEE ROCKFORD SEED FARMS ROCKFORD, ILLINOIS



I Am Going to Give Away Three More Automobiles

in FARM AND FIRESIDE'S
Second Grand Prize Distribution



First Grand Prize
Overland Touring Car

My Personal Word to You

DEAR FRIEND AND READER:
I want a word or two with you personally right at the start. The publishers of FARM AND FIRESIDE allow me to spend thousands of dollars in prizes every year to give away for the purpose of making new friends to our great National Farm Paper. Hundreds of people, yes, thousands, have been pleased and gratified as a result of our unusual liberality in awarding valuable gifts, because everyone who takes part in these friendly Grand Prize Distributions is sure to be rewarded. In my last Grand Prize Distribution, which closed January 15, I gave away three cars to the winners as shown below. In this one just starting I offer three more cars, and other valuable prizes. So you see your chances of winning are even greater than I say. I want to assure you that everyone who enters will receive fair play and honest treatment.
T. R. Long, Auto Contest Mgr.

Everyone is Rewarded Nobody Disappointed

THERE is no chance for you to lose in this all-can-win Grand Prize Distribution. No matter who you are, where you live, or what you do, you are bound to get your share of these valuable prizes, if you'll just stretch out your hands. That's what makes my proposition so wonderful, so much fairer and more to your advantage than all others—the CERTAINTY OF WINNING ONE OF THREE CARS or some other valuable prize. The winners of the three cars on January 15th answered our advertisement, just as I want you to do now, and then you'll be glad that you did. But you'll want to act quick. Sign and mail the Coupon at once and be the first in your neighborhood to get full details of this Grand Prize Distribution.



Second Grand Prize
Ford Touring Car



Third Grand Prize
Ford Touring Car

First Grand Prize

Above is illustrated the 1917 Model, \$635.00 Overland Automobile which will be given in FARM AND FIRESIDE'S Second Grand Prize Distribution just starting. It is a Five-Passenger Touring Car, 31½ horse-power, has electric lights and starter, headlight dimmers, left-hand drive, center control, one-man top. This splendid car is large and roomy and comfortable for five adults, truly a marvel for speed, power and endurance. Your opportunity to own this excellent car is here. It will be sent to the winner without cost and freight prepaid. Send the coupon at once—that starts things rolling your way.

Second and Third Grand Prizes

The illustrations at the left and above are the newest 1917 Model Five-Passenger Ford Touring Cars which will be given as second and third Grand Prizes. They are fully equipped—a well-known automobile that needs no introduction to our readers. You can get one of them without one cent of cost and it will be sent freight prepaid.

Nothing could give you more satisfaction than being the winner of one of these two Fords. Remember, they cost you nothing—I even pay the freight.

List of Grand Prizes

- 1st Grand Prize—\$635.00 Overland Five-Passenger Touring Car, 1917 Model, electric starting and lighting, headlight dimmers, left-hand drive, center control, magnetic speedometer, demountable rims, etc.
- 2d Grand Prize—Ford Five-Passenger Touring Car, Latest 1917 Model, fully equipped.
- 3d Grand Prize—Ford Five-Passenger Touring Car, Latest 1917 Model, fully equipped.
- 4th Grand Prize—\$75.00 Victrola.
- 5th Grand Prize—\$50.00 Diamond Ring.
- 6th Grand Prize—\$50.00 Fur Coat.
- 7th Grand Prize—\$25.00 Gold Watch.
- 8th Grand Prize—\$25.00 Gold Watch.
- 9th Grand Prize—\$25.00 Gold Watch.
- 10th Grand Prize—\$25.00 Gold Watch.

Farm and Fireside's Guarantee

We wish to guarantee to the readers of FARM AND FIRESIDE that this Prize Distribution will be conducted with the utmost fairness in every way and that the prizes will be awarded just as represented.
FARM AND FIRESIDE.

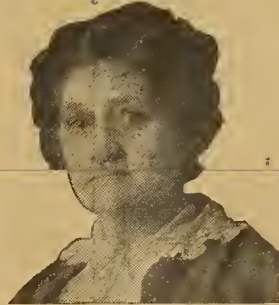
This Grand Prize Distribution ends June 16, 1917. In case of a tie for any of the prizes, a prize identical with that tied for will be given to each one.

Three Recent Auto Prize Winners

Will You Be One
of the Next Ones?



Dear Sir:
When you told me I was the winner of the Overland, I could hardly make myself believe it. To say that I am just as happy as I can be would be putting it mildly. Please accept my heartiest thanks for the splendid way you treated me throughout the contest and for the handsome prize I so easily won.
Yours truly,
Paul Halbert, W. Va.



Dear Sir:
Words fail me when I attempt to thank you for the Ford Touring Car that I have won. I will surely always speak a good word for FARM AND FIRESIDE and for the help you gave me in winning this dandy automobile. Hoping I will some day be able to repay you for your kindness, I am,
Very truly yours,
Mrs. R. B. Kilmer, W. Va.

Sincerely,
Mrs. Geo. Bishop, Ohio.

Don't Delay—Mail Coupon Quick

Surely you want one of these three Automobiles. If you do, can you think of a quicker or surer way to get it than to mail the coupon now? Be quick and you won't be sorry. Get in at once while the big Prize Distribution is just starting. This is the first announcement and you can be one of the first to enter.

After you have inquired and have heard from me, you will wonder how it is possible to get such valuable gifts for so little effort. But the important thing is to write me at once. As soon as I hear from you I will give you credit for 5,000 FREE VOTES and enter your name for consideration in awarding the Grand Prizes. The coupon at the right, properly filled out, gives you a flying, winning start in FARM AND FIRESIDE'S SECOND All-Can-Win Grand Prize Distribution. Mail the coupon with your name and address at once.

T. R. LONG, Auto Contest Manager
Dept. 21, FARM AND FIRESIDE, Springfield, Ohio

Mail
the
Coupon
and Get
5,000
Free
Votes

T. R. LONG,
Auto Contest
Manager
Dept. 21
FARM AND FIRESIDE
Springfield, Ohio

Dear Sir:
Without putting me under any obligations, please send me by return mail full information regarding your Second Semi-Annual Grand Prize Distribution. Also credit me with 5,000 FREE VOTES and enter my name for consideration in awarding the Grand Prizes.

Name

St. or R. F. D. Box.....

P. O.

State

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Is the best and most complete book on Strawberry Growing ever written. It fully explains the KELLOGG WAY of growing two big crops each year—a big profit in the Spring and a bigger profit in the Fall. Tells everything about strawberry growing from start to finish. Write for this book and learn how to supply your family with delicious strawberries the year 'round without cost, and how to make \$500 to \$1200 per acre each year. The book is FREE.



Picking Strawberries in October

Strawberries grown the KELLOGG WAY yield more dollars per square rod and do it in less time than any other crop. The profits made from strawberries are enormous. One acre of strawberries grown the KELLOGG WAY will yield a greater cash profit than twenty acres of common farm crops.

\$1412.50

Is the amount Frank Flanagan of Oklahoma made in a single season from one and one-half acres of Kellogg Pedigree Plants grown the KELLOGG WAY. Others are doing fully as well.

Our 64-page free book will tell you how to make these big and quick profits.

A postal will do—the book is FREE.

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Destroy the fungi and worms, and thus be sure of large yields of perfect fruit.

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are used in large orchards and highly endorsed by successful growers. Write for our money-saving catalog, which also contains a full treatise on spraying Fruit and Vegetable crops.

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YOU will be interested in these two books and I would like to send them to you free. They are a big 120-page Seed Book, and a Sample Copy of our Garden Magazine, Field's Seed Sense. These two books tell the real inside truth about the seed business and gardening.

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Sudan Grass Garden Seeds Early Tomato
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If you have had trouble growing any certain crops, tell me your troubles and maybe I can help you. Advice, such as it is, is free, also seed samples.

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Henry Field, Pres.—HENRY FIELD SEED CO.
Box 80 Shenandoah, Iowa



Garden—Orchard

Uses for Dynamite

By H. W. French

ON MY farm we have found that there are many jobs which come along in the course of a year which the stored-up power in a stick of dynamite will do quicker and cheaper than we could do ourselves. We have used many tons of it, and with few exceptions the results obtained have been excellent. There is little danger in the using of dynamite—in fact, absolutely no danger whatsoever, provided one first realizes that he is handling an explosive and then uses good, sound common sense.

When I came on the place I found a plot of about two acres off to the south from the house and barn. The soil was a rich loam, and it was getting all of the drainage from my cowyard and stables.

I believed that it would make a fine truck garden, but there were about 200 stumps on the lot. With the help of one man I started in to clean the lot with the use of dynamite. It took the two of us three days, and the rest of the dynamite we used was in the neighborhood of \$30.

We followed the rule, "A pound of dynamite for every foot in the diameter of the stump," and in most cases the stump was removed with a single charge. On three or four stumps we used a double charge. The explosive was in each case placed as near directly under the center of the stump as possible.

A few years ago I planted 300 apple trees and used powder for blowing the holes. Their growth has far surpassed some which were set in spade-dug holes at the same time. I have had to remove fruit from these trees every year to prevent their coming into bearing.

A similar experience with grapevines has convinced me that trees and shrubs will do much better where the explosive is used either to make the holes for the original planting or, in case they are already planted, to break up the soil about the growing trees.

Allow Soil to Pulverize

In making the holes for trees or vines I first bore down with the dirt auger (or a subsoil bar and sledge will do as well) for from two to four feet. I then place the dynamite in this hole. We use about a half-pound for each hole. Some soil would probably require more and other soil less. After the dynamite is in it is well to tamp thoroughly in order to prevent a blow-out. I always blow the holes a few days prior to setting in the trees, as this gives the gases time to escape and the soil to pulverize.

In digging post-holes we use the same method as in making holes for trees, except that we do not tamp.

In breaking boulders into sizes which we can conveniently handle, we use the mud-cap method. That is, we place the dynamite on the top of the boulder and then cap it over with six inches or more of mud—clay preferred. I use about a pound of dynamite for every foot in the diameter of the boulder. If the boulder is partly in the ground it will be impossible to break it until it is first

blown out. A two-pound charge, correctly placed, will throw out a very large boulder. Place the charge in such a position so it will throw the stone out or turn it over with the greatest ease.

Muck and Manure Compost

A FERTILIZER experiment directed by Mr. G. W. Carver at the Tuskegee Experiment Station, Alabama, has been in operation for the past twelve years.

The plan has been to make a compost of the muck or peat dug from swamp land, with which is mixed one third the quantity of stable manure, under cover. In the spring this compost is used at the rate of 20 tons to the acre in the row or drill, the seed corn, potatoes, or other cultivated crops being dropped directly on the compost, after which the cultivation is carried on the same as usual. On three acres of ordinary farm land where this system has been followed for twelve years, the land has been constantly cropped and has increased in fertility both physically and chemically with no other fertilizer than muck and manure compost and sufficient lime to keep the soil properly sweetened.

Last year, land handled in that way produced 282 pounds of lint cotton, 45 bushels of corn, 215 bushels of sweet potatoes to the acre, with no other fertilizer than the above compost during the twelve-year period.



This five-pound basket was filled in a Michigan vineyard, as shown, with one cluster of Worden variety of grape

Gains from Grading

By B. F. W. Thorpe

IT DOES not need a prophet to proclaim that the potato crop henceforth will be of greater consequence in this country, now that the food value of this crop is becoming better understood. In the past, potatoes have been marketed in a haphazard way which has not realized the growers as full value for their labor and capital invested as the importance of the potato deserves. When potatoes of all sizes, shapes, and varieties are sold together, the uninviting appearance gives the buyer a distinct advantage.

The first step toward getting full value from his crop should be to make sure of his varieties when saving or buying seed stock; then keep the varieties separate, both when planting and harvesting. Before marketing, the tubers should be graded into at least three sizes where the crop runs from small to over-large. The trade with high-class hotels, dining cars, and institutions frequented by people of wealth will give a nice premium for smooth oversizes for "bakers," but the general market wants the uniform medium size, and the tenement districts take the small sizes readily at a lower price.

Such grading will often add from one fourth to one third to the value of the crop, as the result of the better price obtained and increase of number of bushels. The potato grader will ere long be a necessity.



This grader is making two grades, medium and small. By changing its construction somewhat, another size smaller could be delivered as "tailings"

Before starting the youngsters to school give them a piping hot cup of

Instant Postum

School teachers, doctors and food experts agree on two points—that the child needs a hot drink, and that the drink shouldn't be coffee.

Postum fills the need admirably and its very extensive use among thoughtful parents, coupled with the child's fondness for this flavory, nourishing food-drink, show how completely it meets the requirement.

"There's a Reason"

No change in price, quality, or size of package.



Write today for a pair of Mated Everbearing Strawberry plants, one large packet each of the new Cereal Fatsita, Sudan Grass and Silk Leaf Poppy seed, all Free for Testing. Send 10 cents for mailing expense, or not, as you please. We offer genuine Progressive Everbearing plants at 50¢ per dozen; 90¢ for 24, 1.75 for 36, \$5.00 for 120, all postpaid. CATALOGUE FREE.

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PEACH & APPLE TREES 2c & up

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Free Catalog



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Money returned if not satisfactory.

BET, Crook's Egyptian, best, sweetest early sort.

CABBAGE, New Glory, early, sure header.

CABBAGE, Danish Ball-head, best, solidest winter.

CARROT, Perfect, Half-long, best table sort.

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CUCUMBER, Emerald white spine, great favorite.

LETTUCE, Cream Butter, tender, popular heads.

MUSKMELON, Sweetest Corn, best garden melon.

WATERMELON, Deposit Early, earliest, sweetest.

ONION, Pritzelaker, weight 3 lbs., 1000 bus. per acre.

PARSLEY, Triple Curled, best, most ornamental.

PARSNIP, Improved Cosmo, smooth, sweet.

PEPPER, Crimson King, early, large, sweet.

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Smooth, Clean Potatoes

First rid your seed potatoes of scab and black-leg diseases before planting and you can be assured of a 30% to 40% increase yield.

FORMALDEHYDE

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Best Oat Ever Introduced

First offered four years ago, now the most popular oat in Wisconsin. Result of 14 years breeding work at Wis. Ex. Station. Pronounced there "Best for Medium Rich Soils" and "Best Oat in the World."

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offers splendid stock. Also Olds' White Kherson, Olds' Improved Yellow Kherson, Regenerated Swedish Select, Olds' Scottish Chief and others. Big yielding varieties potatoes, corn, oats, barley, wheat, alfalfa, vegetable and flower seeds. Write today. Samples Free all Field Seeds.

L. L. OLDS SEED COMPANY

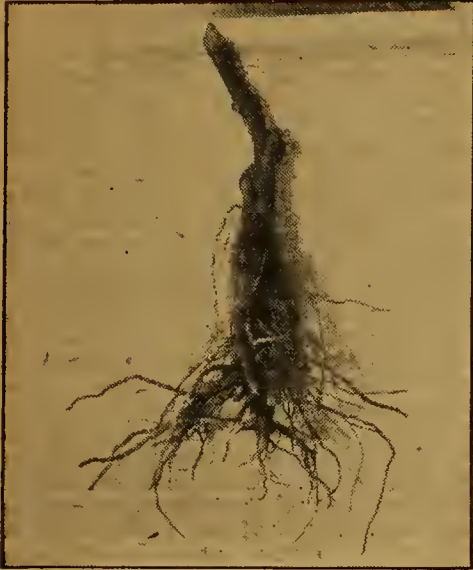
Drawer 21 Madison, Wis.

Deep-Set Tomato Plants

By Mrs. T. B. Baldwin

I HAVE found that deep setting of tomato plants pays well. I set stocky plants, 14 to 18 inches long at time of planting, a foot deep in the soil. The soil must be well drained, well prepared, and moderately rich. Plants set in this way form roots along the entire stem under the ground and increase the feeding surface so that a more rapid and vigorous development of the plant follows. Even though but two or three inches of the plants appear above the surface after setting, that will be sufficient.

Where the soil is not naturally deep and the subsoil lacks fertility, the



The root of a deep-set tomato plant which made a growth of 14 feet above ground and produced over a bushel of tomatoes

plants should be placed in a slanting position, with the bottom of the roots only six or eight inches below the surface. The large deep roots which develop when the plants are set in this way help to prevent the bad effects of drought, and for this reason will out-yield shallow-set plants.

Summer Care of Asparagus

By Frank W. Orr

AFTER the asparagus crop is marketed, the after-cultivation is just as important as that previous to the starting of the crop in early spring. Thorough disking at the close of the cutting season prepares the ground for a good summer growth, and while the disking injures some of the asparagus crowns it destroys the weeds more thoroughly and keeps the soil in better condition than other means of cultivation.

As soon as the shoots start after the disking, run the cultivator between the rows as long as the new growth does not interfere. Some have found it ad-



A heavy spring cutting is insured by vigorous top growth

vantageous to sow cowpeas and beans in the rows at the last cultivation. At the end of the growing season—the tops should be mowed and burned in order to leave the crop in good condition for spring. The burning also destroys asparagus seed, disease germs, and insect enemies.

LADDERS and stepladders can be made in winter to good advantage when outside work is impossible. A battery of ladders, long and short, is a treasure when the fruit harvest presses.

DON'T forget flower seeds, shrubs, and flowering plants when the seed order is being made up.

WE SELL EVERYTHING

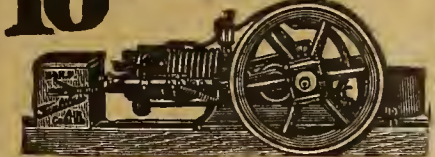
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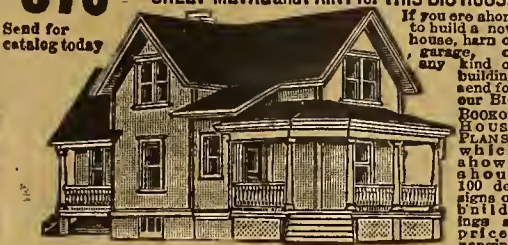


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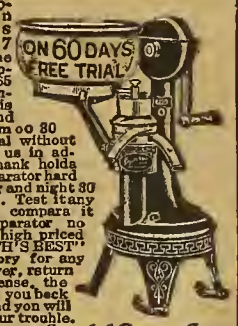
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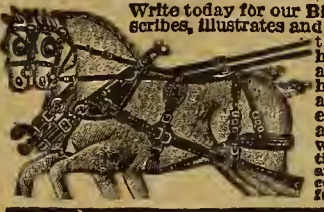
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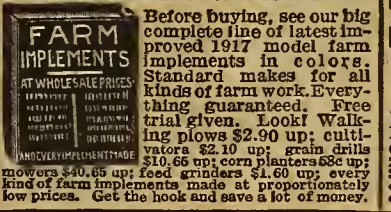
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EARL PIERCE NURSERY CO. 295 Bridge St. Hampton, Iowa

"I'm not red-headed and I'm not easily scared and I'm not silly," she said as she applied for a job

The Blue Envelope

Leslie Masters Shorthand and Learns to Save and Sew

By SOPHIE KERR

PART IV

THE next day I went at shorthand again. I repeated P-B...T-D innumerable times, and I also began on Cha-J...Gay-K. Oh, how triumphant I felt when Miss Trippe said I seemed to be getting a little more "quick." I wasn't through. It took three weeks for me even to begin to get the hang of it.

The whole thing seemed so strange to me—that I should be suddenly translated into this strange and new environment with things and people so utterly different from anything I'd ever seen. A good bit of the time I felt bewitched, a changeling. Then, slowly, I began to feel real again.

It sounds absurd to say so, but I, who had never saved a penny when I had all the money I wanted to spend, actually began to save from my allowance of fifteen dollars a week. Minnie Lacy was responsible for that. "You're going to need clothes after a while," she said, "and if you spend everything you've got, what will you do? You've got plenty to wear now, but clothes don't last forever." And she marched me to a savings bank one day after luncheon and made me open an account, and every week thereafter I had to put in some money.

My little room I rearranged too, and put some pictures on the wall and took down the lace curtain and put up one of scrim that I made myself. Yes, I, who had never sewed a stitch, actually made a window curtain—hem, casing, and all. The way I learned to sew was almost as nice as the beginning of my friendship with Minnie. There was a pretty Russian Jew girl, named Marya Levine, who sat next to me at the business school and often helped me when I was terribly stupid. One day I had ripped the skirt braid on my dress and she saw me pinning it up. She fairly shrieked with horror: "You must sew it," she cried.

I laughed at that. "I can't sew," I told her.

"Then it's high time you began," she said, and with that she took a little sewing case out of her bag and made me sew the braid back in place, with neat little stitches too. She thought it dreadful that I hadn't learned to use the needle properly, and she promptly instituted herself my teacher, coming home with me from the school three times a week. She made me learn to darn my stockings and to mend, and she even gave me a little sewing case like her own so that I would never go ragged.

I wrote and told Mrs. Alex about it, for she had so often tried to teach me to sew—and always failed. And I triumphantly reported to Uncle Bob that I had learned at least two more letters of the word economy.

By the time I was learning "word signs" and trying to remember that "establishment" is a silly little half of a parenthesis and "yes" a half-circle with a hook, and "no" a half-circle without a hook, and "language" a flattish half of parenthesis lying on its tummy, I was quite a seamstress as well. And I was learning the typewriter, but it didn't give me the same enchanting sense of satisfaction in using my hands that sewing did. I used to admire my darns until Marya would jeer at me.

There were other nice girls at the school besides Marya. There was one jolly little girl, named Celia Doherty, who looked so like Helen Morrison back home that she might have been her twin, but when I came to know her she was ever so much cleverer than Helen. Helen had never thought of anything but suitors and parties and frocks in her life, but Celia had the most cosmopolitan sort of knowledge. Socialism and suffrage were her two hobbies, and she used to take me to socialist meetings where the most interesting people talked about the most interesting things, and at noon sometimes we'd go to the Suffrage Shop for luncheon, for it's only twenty-five cents, and there's always something doing there. Minnie wouldn't let me go very often, though, for she said that since I'd paid for my board at Mrs. Harris's it was rank extravagance to buy luncheon elsewhere.

But there was heaps to see and ever so many places to go without paying any money. Oh, I went to strikes and fires and street meetings and free lectures and free concerts and shows and exhibitions and museums—there was always something going

on, and you just had to see it to feel alive. Compared to going to parties at home, or riding with Ranny Heeth in his racer and hearing him make love, was like comparing *really living* to playing dolls in a closet! I not only forgave Ranny Heeth—I forgot him. Every minute of my new life was so varied and the days went so fast! Marya said one day that life was the Great Movie—and I understood what she meant.

But now, when I approached the end of my work at school, some of the old doubts and fears began to find me. Just as if to prove to me how little I knew about anyone, for I'd thought her so stupid and common, Miss Trippe, my teacher, was the one to put confidence in me. She drew me one side mysteriously, and with her eyes shining behind her big-rimmed glasses she said to me, rather diffidently:

"You've been very quick, Miss Brennan, very quick, indeed. I want to tell you that I think you ought to get a very good place. You're a different class from most of the girls who come here—I saw that the very first day—and you've been educated differently. Don't you hunt for a regular office place—try to get

I get a job I'm going to come in and tell you all about it and see if you approve."

So that was the way we parted—beaming at each other. I went out to hunt my job quite cheerfully. Oh, the letters I had from Uncle Bob and Mrs. Alex about it! They seemed to think that I was the same foolish, swathed-in-cotton-wool girl who had left them to come to New York. Uncle Bob sent me a long list of business people he knew and a great bunch of letters of introduction, and Mrs. Alex sent me some letters too. I put them away in my trunk, in a neat little package, and made up my mind to use them only as a last resort. I'd get *my job myself*.

Of course, the advertisements were my first resource, and I answered several and went to see ever so many more who put their names and addresses in the ad. Some were obviously fakes—places where you'd have to work several days without pay "to see if we like your work," and that meant that at the end of that time they'd have a lot of work done and they'd decide not to keep you. Celia said lots of horrid little business firms get all their stenography and typing done that way. Some of the places were so

dirty and unventilated that I wouldn't try to work there. At one the man who interviewed me was a horrid person, though he was the only one of that kind I met. The pay was too small at some of the places—in fact, there was some reason for deciding no to all of them. I went about for a week, when one morning, as I looked through the Want Ads in the "Times," I saw this:

WANTED—A stenographer who can take accurate notes and transcribe them without mistakes. Must not be silly or easily scared. Must not have red hair. Must have a pleasant voice. Middle-aged woman preferred who will have common sense and know how to use it. Good salary. Call between nine and ten on Tuesday morning.

The address given was up in the Bronx, and it was then nearly nine o'clock and the day was Tuesday. I wasn't middle-aged, but the advertisement sounded interesting. I wanted to show it to Minnie, but she had gone to work, and so I put on my hat and hurried away to the subway.

There were a lot of girls and women who got off the subway where I did and I was sure they had come to answer the advertisement. We all streamed out of the

station together. A policeman, looking very humorous, directed us. Two blocks. A big house with lots of trees. We couldn't miss it. So the whole party straggled off, casting surreptitious glances of suspicion and dislike at one another. It was just as funny as it could be, and by the time I had seen a fat blonde in purple plush and a severe-looking cross-eyed lady with a hat all over spiky feathers and two or three others who were even funnier, I could hardly keep my face straight.

Some one of us rang the bell of the "big house with lots of trees around"—and it was a beautiful old house, only not very well kept up—and we were admitted. Several dozen more applicants were there before us. We were shown into a bare sort of old-fashioned parlor, and a pleasant-looking old servant in shirt sleeves brought in chairs that had obviously been recruited from all over the house.

Then a door opened and a young man stuck his head in. He looked so scared, and so cross, and he had such flaming red hair I wanted to laugh more than ever.

"Begin here by the door and come in one by one," he snapped.

So we did—and really, as fast as one went out, two came in, it seemed to me. Every subway and elevated must have brought a dozen or more. They were every age and every size and some were queer and some were very pitiful.

At last it came my turn, and I went into a small room where the red-headed young man sat down behind a big flat desk, looking more scared and cross than ever.

"You're not middle-aged," he said, looking at me defiantly, as though he dared me to prove otherwise.

It seemed so ridiculous that I could hardly keep from laughing out loud. "But I'm not red-headed and I'm a very accurate stenographer and I'm not easily scared and I'm not silly [CONTINUED ON PAGE 31],

E.W.



By permission of Vitagraph Film Co.

At last it came my turn, and I was beckoned into a small room by the red-headed young man

a private secretaryship. People are crazy to get intelligent, good-class girls for private secretaries. I don't mean private secretary to a society woman, but with some real big business man where your class will be appreciated. I want to tell you too, don't let anybody get fresh with you—not that I think you will, but it's as well to remember it. And wherever you are, don't get into a rut—keep an eye on your employer every minute to see if there isn't some new way you can help him. He'll appreciate it. Lots of girls get into a rut and think all there is to a job is taking letters in a notebook and writing them on the typewriter. That's only the beginning. Now, you keep your eyes open and take your own part and you'll get along—as quick as anything. My, that's quite a lecture," she wound up, smiling.

She looked so kind and funny that I put my arms around her and kissed her. "You're a perfect dear, Miss Trippe," I said, "and if I get a job I'll owe it to you and your patience. I do appreciate your taking all the trouble to help me, indeed I do, and as soon as

What Has Gone Before

READ THIS, THEN READ THE STORY: Leslie Brennan, orphan heiress, is told by her guardian, "Uncle Bob," that her father wished her to learn a trade and earn her own living for two years unless she is engaged at the age of eighteen. At the same time she learns that Ranny Heeth, to whom she is engaged, only wants to marry her for her money. She breaks with him summarily, and goes to New York to learn stenography. She makes friends with Minnie Lacy, a forewoman in a necktie factory who lives in the same boarding house, and begins her study, which she finds very difficult.

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MARCH 1, 1917

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Club A-5

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People's Home Journal (M.)	.50	\$1.25
Farm and Fireside (S. M.)	.50	
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Club A-3

People's Home Journal (M.)	\$0.50	Our Price
Green's Fruit Grower (M.)	.50	
Poultry Success (M.)	.50	\$1.00
Farm and Fireside (S. M.)	.50	
At Regular Rates	\$2.00	With the Certificate

Club A-7

To-day's Housewife (M.)	\$0.50	Our Price
People's Popular Monthly (M.)	.25	
People's Home Journal (M.)	.50	90c
Farm and Fireside (S. M.)	.50	
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The Country Boy	.25	75c
Farm and Fireside	.50	
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Home Needlework	\$0.75	Our Price
American Woman	.25	85c
Farm and Fireside	.50	
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McCall's Magazine	\$0.50	Our Price
Woman's World	.35	85c
Farm and Fireside	.50	
With Every Week added	\$1.25	With the Certificate

To-day's Housewife	\$0.50	Our Price
American Poultry Advocate	.50	85c
Farm and Fireside	.50	
With Every Week added	\$1.30	With the Certificate

McCall's Magazine	\$0.50	Our Price
To-day's Housewife	.50	85c
Farm and Fireside	.50	
With Every Week added	\$1.30	With the Certificate

People's Home Journal	\$0.50	Our Price
To-day's Housewife	.50	85c
Farm and Fireside	.50	
With Every Week added	\$1.30	With the Certificate

To-day's Housewife	\$0.50	Our Price
People's Popular Monthly	.25	75c
Farm and Fireside	.50	
With Every Week added	\$1.15	With the Certificate

Boys' Magazine	\$1.00	Our Price
Poultry Success	.50	1.00
Farm and Fireside	.50	
With Every Week added	\$1.50	With the Certificate

Green's Fruit Grower	\$0.50	Our Price
Toledo Weekly Blade	.75	\$1.00
Farm and Fireside	.50	
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American Woman	.25	\$1.10
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LaFollette's Magazine	\$1.00	Our Price
National Monthly	1.00	\$1.35
Farm and Fireside	.50	
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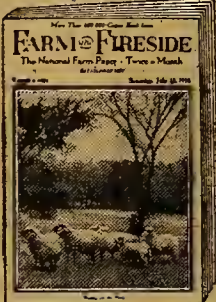
Special Clubs of Two

Prices quoted in this list include FARM AND FIRESIDE and publication listed, each one year.

FARM AND FIRESIDE With

American Boy (M.)	\$1.05
American Magazine (M.)	1.60
American Woman, The (M.)	.65
Boys' Magazine, The (M.)	.85
Chicago Ledger (W.)	1.10
Cincinnati Enquirer (W.)	.85
Country Boy, The (M.)	.65
Delineator (M.)	1.60
Designer (M.)	1.05
Etude (For music lovers) (M.)	1.50
Every Week	1.00
Green's Fruit Grower (M.)	.65
Home Needlework (M.)	.80
Ladies' World (M.)	1.05
LaFollette's Magazine (W.)	1.10
Modern Priscilla (M.)	1.05
Mother's Magazine (M.)	1.60
McCall's Magazine (M.)	.75
National Monthly (M.)	1.05
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The boys voted that girls are no good and a perfect nuisance, but they changed their minds when their cousin came to visit

Uncle Richard's Caroline

A Western Girl's Pluck and Endurance Save the Day

By MARY MINOR LEWIS

WHEN the Blake boys learned that their cousin, Caroline, whom they had never seen, was coming on a visit, they held an indignation meeting behind the cow house and voted that it was a nuisance.

"Girls are 'no good,'" said Alan scornfully. "Mother says she will probably stay all summer, too," added Jack in deep disgust.

"She will be afraid of everything—girls always are," continued Alan, "and she'll want to tag around after us all over the place."

"Then I suppose in a few days she will be homesick," suggested Jack, "and she'll cry if you look at her."

At the dinner table Alan asked of his father, who was the only member of the family who had seen their Western cousin, "What is Uncle Richard's Caroline like?"

"Well," answered Mr. Blake, "and he gave his wife a sly wink,—"when you meet the train look for a fat, red-haired girl, about twelve—a shy, timid-looking child. You boys must be very good to her."

Jack gave his brother a knowing look of "I told you so."

"Twelve years old, big blue eyes like a wax doll, red hair in a pigtail, and—well, peevish," summed up Alan.

A sickening description!

Mr. and Mrs. Blake exchanged smiling glances.

"It will be a great pity if Caroline is afraid of horses," said Mr. Blake as he thoughtfully buttered his roll.

The next day Alan and Jack were sent to the nearest town, ten miles away, to meet their Uncle Richard's Caroline.

They started early, just as the sun rose above Powhatan Mountain, for the road between Glenville and their father's farm in the mountains of southwest Virginia was very steep and rugged.

The boys took a good pair of horses and a light vehicle, but even so it was a four-hour journey there and back.

As the Western Express pulled into the station, Alan left Jack to hold the horses, and he, being the elder, walked down the platform to meet his cousin.

Nobody answering to his father's description got off the train.

He glanced up and down the platform, and was just turning away to break the glad tidings to Jack that Uncle Richard's Caroline had missed the train, or something, when a clear voice at his elbow said:

"Is this Alan or Jack? I am Caroline."

Alan could hardly believe his eyes, for the girl who fell into step at his side was as slim and straight as a young Indian. She was brown too, like a gypsy, with bright dark eyes and a merry smile. Her hair was black and tied in a bunch of curls at her neck.

While she rummaged in her handbag for her trunk checks Alan whispered to Jack:

"Father surely played a joke on us this time!"

Driving home they found that their Western cousin knew a lot about horses and sports, and they each decided that Uncle Richard's Caroline was not so bad after all.

As time passed, their good opinion of her developed into something very like admiration, for they found she could ride anything in the stables, never seemed to get tired, and was always good-natured and keenly interested in everything that was being done on the farm or in the stables.

Caroline had a wonderful gift with all animals.

She spent hours every day petting, handling, rubbing down, and feeding the horses, and gave her special attention to a horse called Demon on account of his ugly temper and the fact that no one was able to manage him.

"Be careful, Caroline," cautioned Mr. Blake, "that horse killed a negro last summer. I'd sell the brute, but he comes of the best Kentucky stock, and is such a beauty that I hate to part with him."

"It would be wicked to sell anybody such a vicious horse as that!" exclaimed Mrs. Blake.

Several weeks passed, and with persistent kindness, gentleness, and patience Caroline had so tamed the beast that she was able to ride him all about the place.

One day as she was taking Demon back into his stall she found Jack sitting on the barn floor holding his foot in his hands and rocking back and forth with pain.

"I was climbing down from the loft," he explained, "and I have

stuck a rusty nail in my foot. It hurts like sixty."

Caroline helped him to the house, and his mother dressed the wound as best she could.

As the pain soon stopped, nothing more was thought of the accident until about ten days later when Jack complained of stiffness in the muscles of his back and jaws.

At the time Mr. Blake and all of the farmhands were away for the haying at one of the other Blake plantations on the other side of the mountain, so the boys, their mother, and Caroline were alone at Tanglewood.

Jack grew rapidly worse. Alarmed, Mrs. Blake put him to bed and sent Alan posthaste for the doctor, who lived in Glenville, ten miles away.

He returned with the doctor in the late evening and, stopping only long enough to get a fresh horse, Alan set off again to summon his father.

THE doctor examined Jack's wound made by the rusty nail, asked a few questions, looked very grave, and said, as he closed the door of the boy's room:

"Your son is in a most dangerous condition."

"What is it, Doctor? What is it?"

Mrs. Blake's face was ashen and her voice trembled.

"It is tetanus, or lockjaw," answered the doctor.

"One thing—and only one—can save him. With a prompt injection of anti-tetanic serum the boy has yet a chance to live."

The doctor took out his notebook, rapidly scribbled a few words upon a leaf, and handed it to Mrs. Blake.

"Send without a moment's delay," he ordered, "to the druggist at Glenville. Impress upon your messenger that it is a matter of life and death. If the prescription is here in two hours your boy may be saved from a horrible death."

For a moment, dazed with misery, Mrs. Blake stood like one stunned. "My boy! My boy!" she wailed, wringing her hands.

"Send," urged the doctor, giving her shoulder a gentle shake, "send this order immediately. I will go back and work over the boy."

Remembering that they were alone at Tanglewood, Mrs. Blake asked wildly:

"Send? Send who?"

"Send me!"

In the doorway stood a little girl in a khaki suit, a riding crop in her hand.

"Caroline!" exclaimed her aunt. "You? You are just a child! It is already ten o'clock and Glenville is ten miles away."

The doctor gave a quick glance into Caroline's

white, resolute face—"Go!" and he put the slip of paper into her outstretched hand.

"Go! Keep on going, and remember that it is a race with Death!"

Hardly had he ceased speaking, before a slim figure was bounding down the stairs and racing towards the stable.

With incredible quickness she saddled Demon, in another minute she was upon his back.

Like a flash, with a clatter of iron-shod hoofs, she was down the lane and out upon the wild mountain road.

On and on, mile after mile, they raced through the darkness.

Now and then Caroline bent forward in her saddle to stroke her favorite's glossy neck, all flecked with foam. At the hills she drew in her reins, and again upon the level she urged the good horse on.

At a mad gallop they thundered over the wooden bridge of Willow Creek, and with flying hoofs striking sparks from the rocky road Demon dashed into the county turnpike.

The night was marvelously still. Pale stars pierced the velvet of the dome overhead. A whippoorwill called.

As horse and rider turned into a deep stretch of woods a fox barked, and strange, terrifying shadows loomed big as giants along the roadside.

The little girl's heart beat wildly.

She leaned far over in the saddle and whispered words of encouragement, and the brave animal sprang forward with long, sure strides.

"It's a race with Death." The child repeated the doctor's words with quivering lips.

She patted the shining neck. "It's a race for Jack's life, but we'll win it—you and I!"

The blood of Demon's famous Kentucky sire was proving itself.

WINDOW shutters were hastily thrown open along the road, and tousled heads were thrust out to stare after them in the darkness. On! On! On! At last the lights of the town appeared, and at a little past eleven o'clock Caroline drew rein at the drug store.

The place was in darkness. She pounded with her crop upon the door and called.

Immediately the head of the night clerk appeared at an upper window.

"What's wanted?"

"Oh, please, please hurry," cried Caroline.

It seemed ages before the man slid back the bolt that locked the door, and then she waited in an agony of impatience while he read the slip the doctor had given her and secured for her the serum on which her cousin's life depended.

At last he put it in her hand, and in less time than it takes to tell it Demon and his brave little rider were making all speed back over the home road, the precious package safe in her pocket.

The miles of the homeward journey seemed twice as long as those to the drug store at Glen-dale had been. Caroline counted off the landmarks as she passed them.

"Only eight more miles." Later, "Only five," and then, "Only two more." By the time she reached the last mile she was sobbing with weariness and fear that she would be too late.

At half-past twelve, breathing heavily, covered with sweat, with blood in his nostrils and every muscle a quiver, Demon dashed through the gate at Tanglewood and up to the doorstep where the doctor waited to seize the package from Caroline's hand.

Utterly spent, the little girl slipped from the saddle and reeled into the house, where she sank exhausted upon the floor.

Hours later the doctor found her there.

He lifted her up and put her upon the sofa. Then she opened her eyes.

"Were we in time?" she asked anxiously. "Did we win the race—Demon and I?"

"Yes," answered the Doctor, "you and Demon have won the race with Death. The boy will live."

She sighed deeply, and two tears slipped from beneath her closed lids.

"Caroline," said the doctor, "if you were a soldier on one of Europe's battlefields, and I your sovereign, I should decorate your breast with the coveted cross, on which would be inscribed, 'For bravery and gallant service rendered to a wounded comrade.'"

EW



—JOHN EDWIN JACKSON—

"Is this Alan or Jack? I am Caroline"

The Blue Envelope

[CONTINUED FROM PAGE 28]

and I have a pleasant voice," I answered gently.

"Why—why, so you have," said the red-headed young man. "What's your name?"

"Leslie Brennan," I said. "What is yours?"

"Hmph, you're Irish," he replied. "Mine's Ewan Kennedy."

"Mnph, you're Scotch," I said. I had, of course, not the slightest hope of getting the place, but I wasn't going to be talked to that way and let him get away with it.

A flicker of—was it amusement?—it was certainly interest—came into his deep eyes. He looked me over very carefully, from head to foot, and I looked him over at the same time, as coolly.

"I'm a chemist," he announced, "and I'm making a series of experiments. Sometimes there are explosions, small ones—I give you my word there's no real danger—and I want a secretary who won't scream and run every time she hears a noise in my laboratory."

"What is the salary you offer?" I asked.

"I paid the last girl eighteen dollars a week," he said doubtfully. "If I were sure you wouldn't scream and run, I might make it twenty."

"That will be quite satisfactory," I said, repressing a desire to dance around the room.

"Can you answer letters without dictation," he asked, "and make 'em sound all right?"

"Try me," I said, and with that I sat down, for all this time he had been sitting and I was standing.

Mr. Kennedy stared at me again and I stared back.

"I will try you," he said. "I wanted an older woman, but—you look as if you had sense." He went to a back door. "Hi, George," he called, "send 'em all away and don't let any more in. The place is filled."

Now did anyone ever hear of such a ridiculous, unbusinesslike proceeding as this—about as far removed as possible from what I had pictured. Anyway, I had a job and a salary of twenty dollars a week—just twice what I had anticipated starting at.

"You'll have to go to work right away," said Mr. Kennedy. "Here, read those letters and dope out answers to 'em and then let me see 'em." He scooped up an armful of loose papers and handed them to me.

"Where's my desk?" I asked, taking the papers.

"Desk—desk?" he said vaguely. "Oh, yes—right here." He got up and waved me to the place where he had been sitting. Then I saw there was a place for a typewriter in the center part that he had kept covered with letters. "I don't sit at any desk," he said. "I'm back here in the laboratory. You'll have to see people when they come. I can't be bothered."

He said this in exactly the tone a spoiled little boy might have used.

"Very well," I said. And putting the papers down again on the desk I took off my hat and coat and hung them up. Mr. Kennedy had vanished into, supposedly, the laboratory.

[CONTINUED IN NEXT ISSUE]

A Lay of 4,000 Eggs a Day

[CONTINUED FROM PAGE 3]

supplied with electric light and a highly efficient electrical egg tester, the operator tests the eggs within the hatching chamber and no chilling of the eggs is possible.

When the Yesterlaid flocks grew to dimensions beyond the home plant, Mr. Lawry worked out an ingenious plan to take care of the overflow. Contracts were arranged with neighboring farmers which obligated them to get rid of every chicken on their farm and be supplied with Yesterlaid farm Leghorn chicks each spring. These chicks were identical with those kept on the home plant. The eggs from the co-operative flocks are taken by the manager of Yesterlaid Farms and marketed or stored, as the conditions make necessary, along with the eggs from the home farm.

At the proper time in midsummer he or his superintendent goes through the co-operative flocks kept by the farmers of the community and handles and examines each individual hen. All found below standard go to market.

The 1,000-hen unit flocks are mated in proportion of one male to ten females. This is a greater proportion of males than is ordinarily used, but Mr. Lawry believes that the greater surety of high fertility in the hatching eggs much more than makes up for the additional cost of the males and extra feed consumed. For the trap-nested, line-bred, pedigreed breeding flocks, from 40 to 300 of the selected hens are penned together. The stud males are kept in coops in the same building, and when the hens are released from the trap nests they are placed in their own particular stud coops to be mated and are afterwards released. The chicks hatched from these various matings are marked and pedigreed for future operations.

My visit to this remarkable egg-laying farm brought forcibly to my attention the advance that is being made in the egg-producing industry. Much of the specialized work that is insuring success on this egg farm can be adopted in some degree by farm poultry plants having only a few hundred layers. The important lesson to be learned from the poultry operations there being carried out in the realm of breeding for heavy production is identical with what is being done with dairy cattle and other farm animals. The poultryman from now on either must adopt the same plans that are insuring success in the breeding of other farm animals or else conduct his poultry business at a loss.

A Word to the Auto-Workers

By T. R. LONG

FARM AND FIRESIDE'S first Grand Prize Distribution is over, and I want personally to thank all my friends who have worked so loyally and effectively. From the very first it was evident that FARM AND FIRESIDE readers are determined and progressive people. The contest between the workers was lively all the time, but it was not until the last votes were counted that any of us knew who the lucky winners were to be.

Mr. Paul Halbert of West Virginia was the first grand-prize winner, and to-day is rejoicing in the possession of a beautiful big 1917 Overland touring car, which represents, so Mr. Halbert tells me, only a few weeks of pleasant, interesting work, right in his home county.

The second prize, the five-passenger 1917 Ford touring car, was won by Mrs. R. B. Kilmer, who by a strange coincidence also comes from West Virginia. Mrs. Kilmer's work has been amply rewarded as she also won the \$100 check and the beautiful \$75 Victrola for special work the last two months.

The third prize, another 1917 Ford touring car, was won by Mrs. George Bishop of Ohio. Mrs. Bishop's record shows what perseverance and determi-

nation will do. Not long before the contest closed, Mrs. Bishop felt that her chances for winning were not particularly bright, but she responded to my words of encouragement and help, and as a result she now owns her own car.

And just to show that young and old have equal opportunities in FARM AND

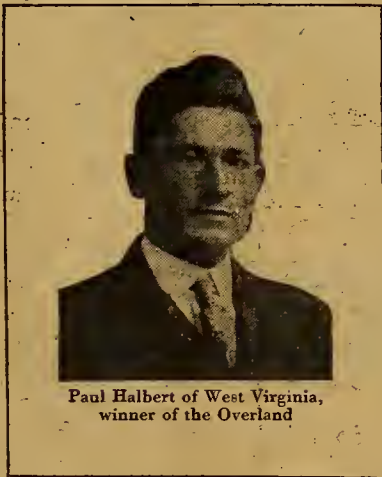
FIRESIDE'S distribution, here comes a young lady, Miss Fannie Adams of Kansas, to whom I am sending the fourth prize, a beautiful \$75 Victrola, an instrument that will give a lifetime of happiness.

The fifth prize, a \$50 diamond ring, was won by Mr. B. F. Close, Pennsylvania.

The sixth prize, a beautiful fur overcoat, was won by Mr. A. K. Switzer of Ohio.

The seventh, eighth, ninth, and tenth prizes: four handsome gold watches, were won by Mr. Anthony Simon, of New York; Mr. J. T. Reese, Ohio; Mr. Arthur D. Coon, New York; and Miss Katharine C. Bradley, Massachusetts.

This prize distribution has been so satisfactory that I have arranged to conduct another campaign, starting at once. None of the winners in this first distribution will be allowed to enter. Please read my announcement on page 25 of this issue of FARM AND FIRESIDE.



Paul Halbert of West Virginia, winner of the Overland

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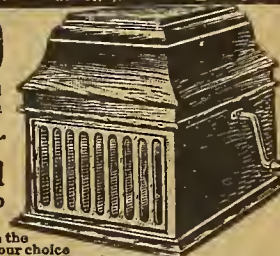
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Housewife's Club

Selecting Rugs

By Jane Macpherson

A WOMAN of resource and ingenuity can work wonders with very limited money by cultivating her taste in choosing rugs. She must learn to care for pure tones and good backgrounds. She will soon discover it is more restful and refreshing to go into a room with cool green walls, white paint, wrought-iron hardware, and a carefully chosen rug, than into one with "loud" walls, gold furniture, brass fixtures, onyx tables, and large patterned carpet.

When buying a rug it is well to draw a complete diagram of the room, as nearly correct in shape and proportion as possible. Measure with a rule or yardstick in preference to a tape line, and give dimensions in feet and inches. In this way it can be determined how large a rug the room will need. If this can be done by the purchaser, the car fares and expenses of a man from a store will be saved, and this is worth while if there is only a limited amount to spend. Having learned the size of rug needed, the quality and kind of rug must then be decided on.

The color scheme of the room must be in mind. There are few things about a house that, in a quiet way, have more influence upon humor than floor coverings. One may not often notice them directly, but nevertheless they have an influence upon one's subconscious self which is undeniable. Rugs give the fundamental note to the scheme of the rooms. If they are of suitable color and strikingly arranged, they lend to the room a certain feeling of comfort which is essential to the well-decorated home; but if they are not, they destroy the whole effect of an otherwise well-appointed house.

A floor must be the strongest color in a room. Golden brown and dull green are good colors to combine in floor coverings. Good designs are the most important features. The most successful designs for rug-making are those adapted from Indian motifs. Never use large designs in a rug; one tires of them sooner than of small designs. Also, the small designs look much daintier.

There are many kinds of rugs to choose from, and at prices to suit nearly everyone. The most expensive and beautiful rugs are Persian, and they come to this country in great quantities. Persian rugs are made very carefully, by hand, on looms of primitive construction. The only tools used are a pair of shears, a comb, and a mallet. No changes have been made for centuries in the mode of weaving or in the patterns used, and as some of them were in use before the days of Abraham, a feeling almost of reverence comes over one in seeing these ancient designs.

The Orientals have not the same craze for novelty that possesses the Western people, and much of their success in rug-making is due to this fact. There is much individuality in many of their rugs, and those who understand the symbols they make use of can trace the history of a people by their designs.

The Wilton and Axminster rugs are used to a great extent in this country. Some of them copy a Persian rug so closely that a rug purchaser might be deceived as to its genuineness. The Body Brussels is perhaps the favorite rug, and is manufactured in several qualities.

Old carpets need never be thrown away when shabby, as they can be pulled apart, cleaned, and reweaved into small rugs. Four yards of carpet make one square yard of rug. The usual price is \$1 a yard for ripping and cleaning the old carpet and weaving the rug. This includes delivery. Velvet, Brussels, or ingrain can be used, but the pile

carpets are not mixed with the flat carpets when woven.

Home-made rugs are also important. The expense of furnishing is so great that, whenever possible, it is no little help to make something for the home out of material that would otherwise be wasted.

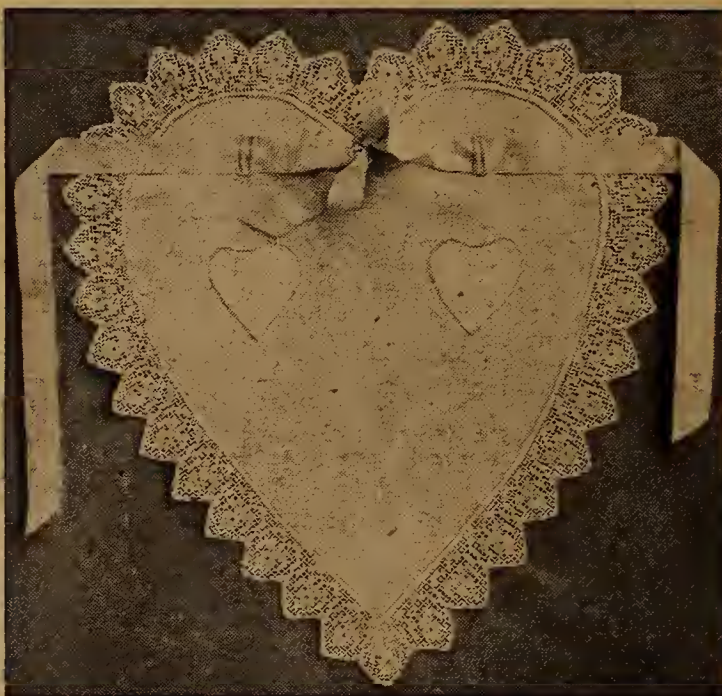
Owing to the revival of interest in old-fashioned furniture, and in the love of simple things for the home, rag rugs have become universally popular. These, however, can be bought in such exquisite colorings at stores that it seems futile to make them; but there are several varieties that can be made at home from old clothing which, when placed upon matting or bare floors, reduce the rug bill and add to the decorative appearance of the home. Their advantage lies in their economy and in the fact of their being washable, which appeals strongly to the housekeeper of to-day.

Decorative Panels

By Mrs. M. J. Thompson

A VACANT space in your upper hall or even in your bedroom may be filled up by making panels of Japanese towels. I prefer the birds or long designs. I made a three-quarter-inch hem in either end. From a manual training shop I purchased some round sticks about the size of a pencil. I sawed them two inches longer than the width

Heart Apron



THE heart lace on this cunning apron may also be used for trimming dainty lingerie of any kind, and is especially appropriate for the bride's trousseau. Complete directions for making it will be sent by the Fancy-Work Editor, Farm and Fireside, Springfield, Ohio, on receipt of four cents in stamps.

of the towel, painted the ends a dark brown, and ran them in the hems. I drove two little nails into the wall just above the lower rod. Two more went in at the bottom of the upper rod, and then the panel was stretched up.

Hairpin or Maltese Lace

MAKE hairpin lace the desired length required.

First: Fasten thread in hairpin by first making a loop with crochet needle, taking loop off needle, and inserting the hairpin in the first loop. Turn hairpin from right to left. Make single crochet, then insert needle into loop at left of center, and make a single crochet. Turn and continue, always turning hairpin from right to left. Chain two, insert needle under two loops and make a single crochet. Chain two, single in next two loops, and continue to end of work.



Second: Turn, five single stitches over two chain stitches of preceding row, and continue to end of work. Fasten off thread.

Third: Attach thread to first loop on opposite side of lace. Chain one, single in next loop, inserting needle from beneath to form twist in threads of loop. Chain one single in next loop and continue to end with single in each loop and chain between.

Fourth: Chain five. Turn. Skip three stitches of preceding row, making double crochet in fourth stitch. Chain two. Skip three stitches, one single in next to end of work.

Scissors in the Kitchen

By Elizabeth Ayer

HAVE you a pair of sharp steel scissors in your kitchen? If not, think of the things they will help you do and you will procure a pair at once.

When cutting meat, celery, marshmallows, pimento for salads; or carrots, cabbage, onions, parsley for soups, nothing could be more useful than a pair of scissors. This is also true when cutting citron, lemon or orange peel, or taffy candy.

Rhubarb sauce will have a better color and flavor if the stalks are cut with scissors instead of a knife, as the scissors do not remove the skin.

A fowl is more easily disjunct with scissors than a knife. The work is done more quickly, and there is no splintering of the bones.

These are only a few of the uses for scissors in the kitchen, besides the ordinary use of cutting strings and shelf papers. However, to be useful, the scissors must be sharp, and to be sharp they require care. The scissors should be washed and dried thoroughly after using, and hung up so they will be open.

Making Difficult Hems

By Fern Lawrence

IN MAKING hems in woolen materials or other materials that do not easily stay in folds, I have found that a little greater care in taking each step will result in a more even and accurate hem.

I measure all around the skirt carefully, putting seam to seam, and pin the desired depth of hem. Then I baste the lower edge of the skirt with white thread. I now turn under the raw edge about a quarter of an inch and baste down this fold with thread to match the goods, taking long stitches on the wrong side and short ones on the right, in order that this basting may be left in the hem. Now I am ready to baste the hem, and, if properly done, the hem is perfectly even all around and is ready to stitch.

EASY DESSERT

Any good gingerbread recipe may be used for this simple dessert. The following is a tested one. One cupful of New Orleans molasses, one cupful of sugar, and one cupful of melted butter. Stir. Add one cupful of cold water, four cupfuls of flour, sifted with one teaspoonful of ground ginger, one-half teaspoonful of soda, one-half teaspoonful of salt, one-half teaspoonful of cinnamon. Bake in two shallow cake tins for a half-hour. When done, cut in squares for serving; split each square, and insert a marshmallow in each. Then set back in oven for five minutes and serve with whipped cream or hard sauce.

C. M., Illinois.

TOMATO TOAST—Warm the contents of a can of tomatoes and add a little butter and salt. Pour over slices of fresh buttered toast and serve hot.

L. P., California.

HOE CAKE—Three and a half cupfuls of corn meal, two and a half cupfuls of white flour, three eggs, two cupfuls of buttermilk, butter size of an egg, one-half cupful of brown sugar, one tablespoonful of molasses, one teaspoonful of soda, one teaspoonful of salt. Beat until light, bake in hot oven. Serve with bacon or with sweet, new butter.

L. T., Maine.

POTATO AND HAM—Into a buttered baking dish put alternate layers of cold potatoes sliced thin, chopped ham, and white sauce. Use plenty of sauce. Make sauce with one large tablespoonful of butter, melted, a large tablespoonful of flour stirred smooth, and one and one-half cupfuls of milk. This is very good for supper.

C. B., Vermont.

VALENTINE WAFERS—One teaspoonful of gelatin, two teaspoonfuls of cold water, three teaspoonfuls of boiling water, two cupfuls of confectioner's sugar, flavor to taste. Soak the gelatin in the cold water five minutes and dissolve in the boiling water. Add sugar and mix thoroughly.

Place the mixture on a dredging board with sifted confectioner's sugar, knead until perfectly smooth. Separate, and to each part add the desired flavor, adding more sugar to make stiff, then roll as thin as possible and cut in circles and hearts.

A. M., New York.

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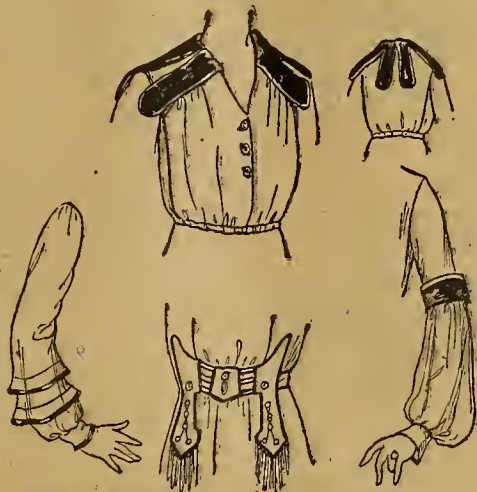


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Three things that are interesting to know—that machine stitching is going to be a favorite trimming this spring, that skirts are to be from one to three inches longer, that bright colors are to be the vogue



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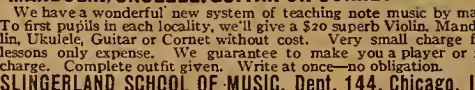
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Children's Corner

The Child Who Hated to Wash Dishes

By Ruth M. Boyle

THERE was once a child named Merryheart who was very happy all day long except for one thing—she hated to wash dishes. Every day, three times a day, she had to put on a big checked apron and go to work at the six cups and six saucers and six plates and six sets of silver that she and her mother and father and her three little brothers used at the table.

And every day, three times a day, as she stood before the big dish pan, she would say to her mother:

"There is no use in washing the dishes. They just get dirty all over again."

Then her mother would begin to sing or tell a funny story to make Merryheart laugh, but the little girl would slam the dishes angrily around in the pan until all six plates and cups and saucers and sets of silver were clean and scalded and set away to drain. Then she would be perfectly happy and contented again until after the next meal.

One noon, just as she was slipping into her big checked apron, the thought came to her: "I will not do the dishes. I will run away." She hung her apron up again and ran outdoors. When she had gone as far as the big apple tree she sat down to think where she could go so that there would be no dishes to do.

"Let me take you to Slovenly Land," squeaked a voice just behind her.

Merryheart looked around and saw a hunched-up, brown little man staring at her with all his eyes. He was so unattractive that she was very sure at once she didn't want to go with him to Slovenly Land or anywhere else. His clothes were ragged and dirty, half of the buttons on his coat were gone, his shoes were untied, his hands were soiled, and there was a hole in his cap. Merryheart was a very polite little girl, and she didn't know how to refuse without being rude. She thought quietly about it a moment, and the little man squeaked again: "We never wash dishes in Slovenly Land."

At that he took her hand, and rather hesitatingly, to be sure, she followed him.

All of a sudden she found herself in a long tunnel which seemed to go down into the ground, and presently she was in a great, rambling, underground house with many rooms and scores of brown, untidy, little folk everywhere.

"We all belong to the Less family," explained her guide. "I am Use Less.

Our king is Shift Less and our queen is Care Less."

"What disagreeable names!" thought Merryheart, but she was too polite to say it aloud.

All the chairs seemed to have wraps or something else on them, and Use Less took one and emptied it on the floor.

"Why don't you hang things up?" the little girl couldn't help asking.

"Why should I? They will simply be taken down again," answered the little brown man.

Just then a bell rang loudly, and all the folks rushed toward a great room in the center of the house.

"Dinner time," said Use Less. "Come on."

"I have had my dinner," said Merryheart, "and I am not hungry."

"But you must eat something anyway, or you will make our cook Ruth Less angry," answered the little brown man.

Merryheart went very reluctantly into the big dining-room, where the Less folk were all waiting for her impatiently.

"Why, why," she gasped, when she looked around her, "we can't eat off these dishes! They are not clean. We must wash them."

"What is the use of washing them?" the Less people chorused. "They would only get all dirty again."

Merryheart put her fingers in her ears and ran as hard as she could back the way she had come. And quite suddenly she was under the apple tree again, and in sight of her own house.

"Merryheart! Merryheart!" she heard her mother calling. "Aren't you going to wash the dishes, dear?"

"Yes, Mother," she answered hastily. "We don't want to live in Slovenly Land."

Of course, her mother didn't understand, but Merryheart hurried indoors and put on her big blue-and-white checked apron and began washing the six cups with vim. And—do you know?—from that day to this she has actually liked to wash dishes!

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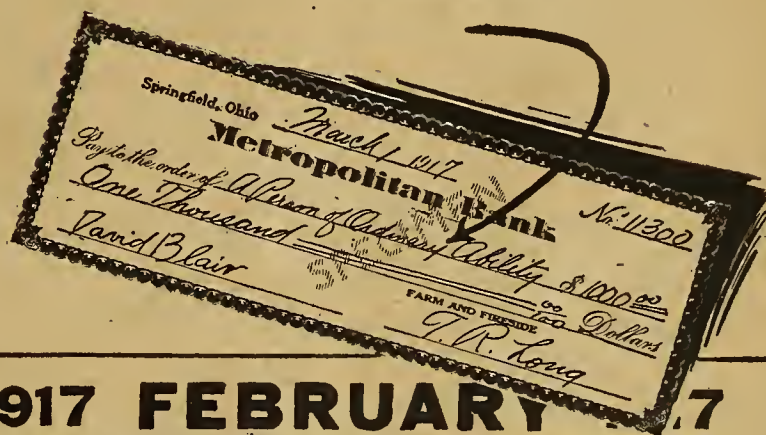
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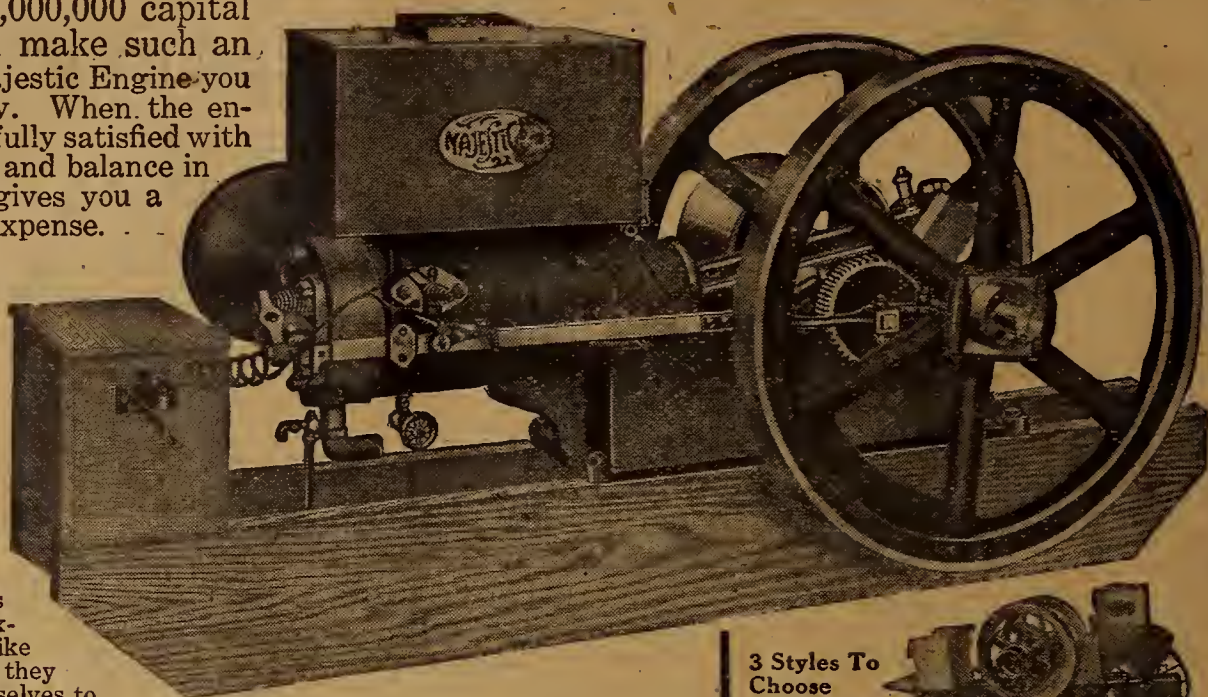
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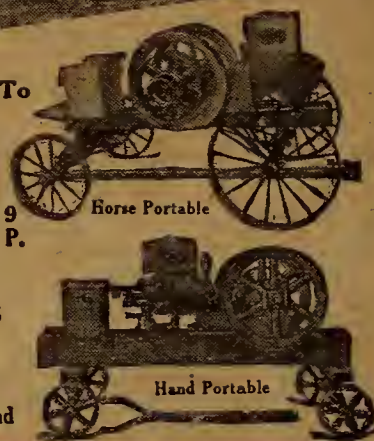


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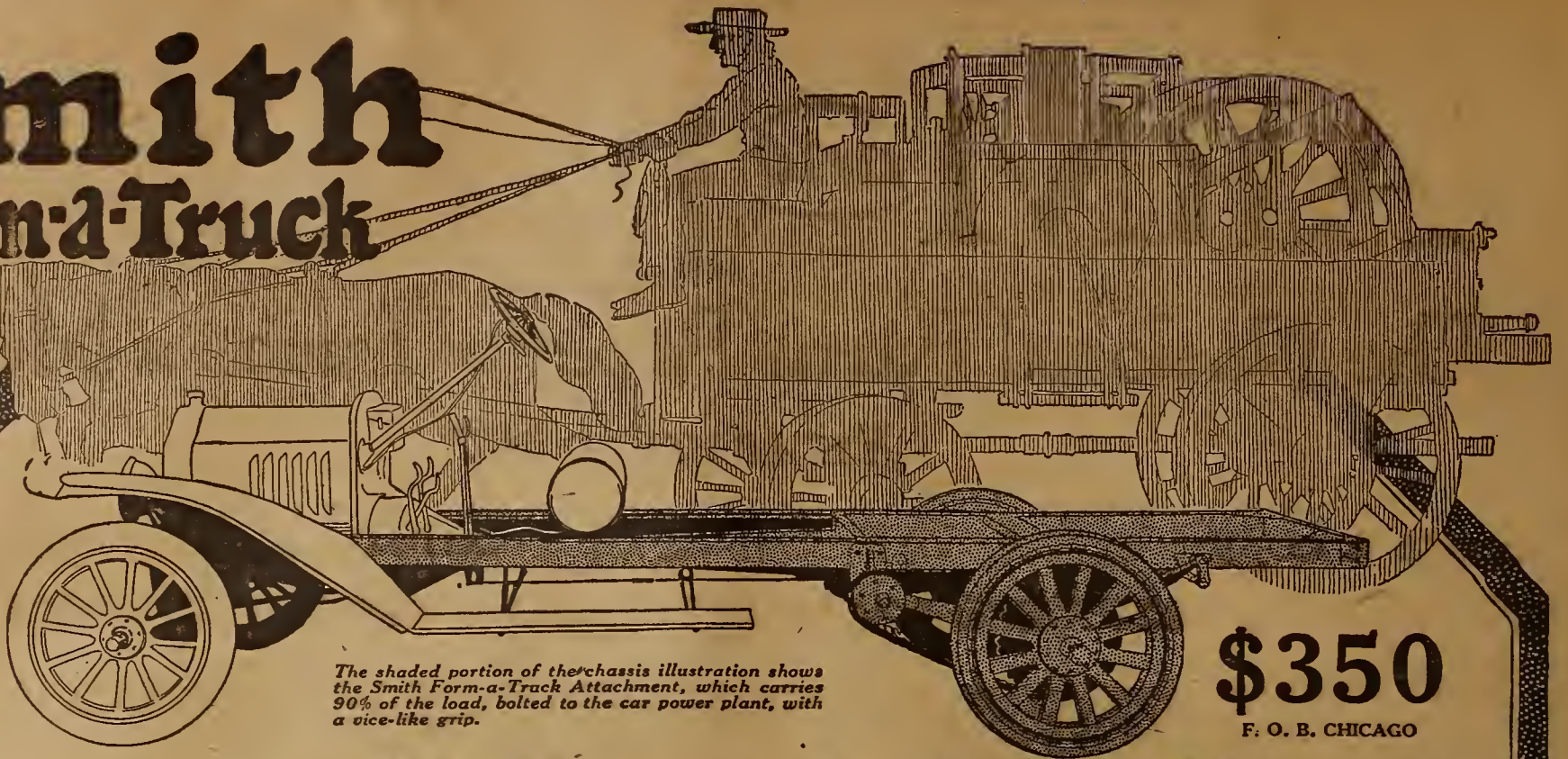
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PHOTOGRAPH BY JOHN KABEL

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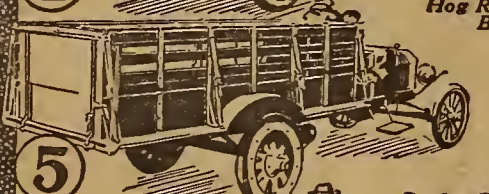
Grain
Body

④



Hog Rack
Body

⑤



Basket Rack
Body

⑥



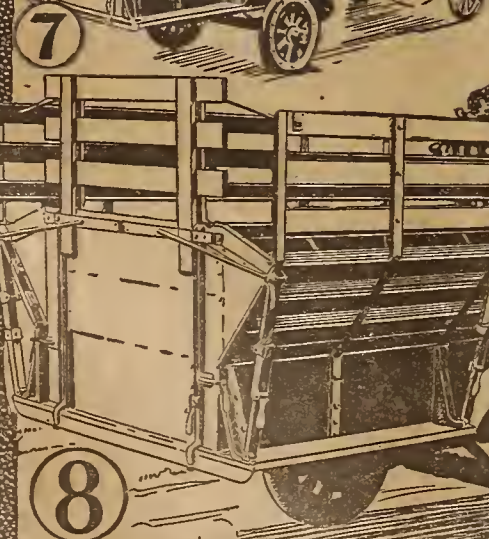
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FARM and FIRESIDE

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No. 10

Cashing in on Culls

How I Made \$2.05 a Bushel on Off-Grade Peaches

By R. E. ALLEN



Three-year-old Alton peach trees which will bear next year

WE SOLD our cull peaches last year for \$3.39 a bushel and made a net profit of \$2.05 a bushel. Usually we have fed to the hogs the 125 bushels or more of cull peaches that we have each year. But it seemed to us that the peach-fed hogs didn't show the proper amount of appreciation for the dessert on their menu, so we determined to find some better method of disposing of our culls.

We found the method all right. Our culls netted us more per bushel by the method we used than did our fancy Altons and Champions that we sold for \$2.40 per Georgia carrier. How did we do it? We simply converted the 125 bushels of Carman, Belle, and Elberta culls into approximately 550 gallons of peach syrup, which we sold to an ice-cream and confectionery company for 75 cents a gallon.

Our culls consist of overripe and undersized peaches as well as "drops" and those slightly touched with brown rot. It is practically impossible for us to sell such peaches except by peddling them in the factory district. Rather than resort to this expensive method of selling with the small returns—scarcely over 50 cents a bushel—we fed them to our hogs, but that also seemed poor business.

In casting about for some better method of utilizing culls, we thought of evaporating them, making peach butter, and the home manufacture of peach juice and syrup. One of our neighbors already had a large and well-established trade in high-quality peach butter. In fact, we frequently get peach butter from him. We didn't care to become a competitor of our neighbor in the manufacture and sale of peach butter, so decided to make peach syrup from our culls.

Our venture was something of a blind experiment, but luckily it turned out successfully. We knew that in the tidewater regions of Virginia and Maryland the negroes made a kind of syrup from peach juice, molasses, and ginger. This syrup is fermented and a powerful peach brandy known as "mobby" is produced by distil-

lation. One little drink of mobby seems to take a negro's legs and arms completely out of his control. So we didn't want to make mobby. Our State is a dry one, and we are a family of teetotalers as well. Finally we concluded that some kind of a combination of the grape juice and apple syrup processes would serve our purpose, and after a few trials we evolved a method by which a very good-looking and even better-tasting peach syrup could be made inexpensively.

This is the way we made it:

The peaches were brought in baskets directly from the orchard to the packing and storage sheds. There the peaches were pulled apart by hand and the seeds removed. As fast as a tub of halves was filled, it was emptied into a 30-barrel steel tank that we had used for cooking feed, storing water, and for various other purposes. The tank had been thoroughly cleaned and sterilized before operations commenced.

When halved and seeded, the 125 bushels of culls did not quite fill the tank. Just enough pure water was added to almost cover the peaches. Then we turned the steam from the boiler into our big "preserving kettle" and soon the whole tankful was in a "merry stew." We didn't boil the peaches, but just allowed them to simmer for half an hour.

By that time they were just about half-cooked. Then the steam was turned off and the mass was allowed to cool for half an hour. The peaches were then put through an ordinary fruit press. A little over 12 barrels of juice was pressed out and nearly four barrels of pomace was left. The juice was strained through wire gauze and cloth and then put back into the "kettle," which had been cleaned and washed out in the meantime.

Temptation to Use Cheap Sugar

WE TURNED on the steam again and the juice was soon boiling. With steam heat there was no danger of the juice's burning, but it did show an aggravating tendency to foam up and boil over. We remedied this by shutting off some of the steam and stirring the juice with paddles. Twice it was necessary to suspend boiling and skim the juice. After the second skimming we added the sugar. We had found by previous experiments that a gallon of juice needed about one pound of sugar to make it "taste good."

When it came to buying 550 pounds of granulated sugar we were sorely tempted to use some cheaper grade or less of the granulated, but decided that the risk of spoiling the syrup was greater than the risk of not getting our money back. The granulated sugar cost \$38.50, but it was all stirred into the juice. For a few minutes, after adding the sugar, it looked as though we were going to have about 4,500 pounds of choice peach jelly on our hands, but the syrup soon thinned and became juicy again.

We allowed the juice to boil about ten minutes longer after adding the sugar. Then we skimmed it again and began to draw it off and bottle it. The bottling of 11 barrels of syrup by hand proved a prodigious undertaking. We strained the syrup twice through sterilized cloth into a barrel and then began to fill the bottles by means of a siphon made from a rubber tube. After bottling about 200 quarts by hand we became thoroughly disgusted with the job and sent post-haste for a neighbor's milk-bottling machine. Things went better when we got it, until we ran short of bottles.

We anticipated having about 1,600 quarts of the syrup, and had bought 1,000 quart milk bottles

of the seal-cap type at a cost of \$55. Also 600 square, second-hand quart whisky bottles had been imported from a neighboring State at a cost of four cents each. Our bottles and sugar ran our cash outlay up to \$117.50. It was rather an expensive experiment to take a chance on.

About five o'clock in the afternoon we had filled all of our bottles, and there remained in the tank about three barrels of the syrup. Then began a search high and low for other containers in which to put the syrup. Every empty jar, jug, and bottle on the farm was requisitioned, sterilized, and filled. Still there was a barrel of syrup left and apparently nothing to put it in. Finally, an old vinegar barrel was hurriedly cleaned and steamed. With considerable misgiving we filled the barrel with the syrup.

The syrup was as perfect as we could wish it. Although I've never seen or tasted ambrosia, somehow my conception of the appearance and the taste



Portion of seven bushels of Belles picked from one ten-year-old tree

of the "food of the gods" corresponded exactly with the appearance and taste of that peach syrup. It would seem golden-hued in one light and carmine-pink in another, and its taste and odor were those of fresh ripe peaches. We discovered that it would make delightful "peachade" upon the addition of an equal portion of ice water and some sugar. Gradually it dawned on us that we couldn't use 550 gallons of peach syrup ourselves, and must sell the stuff.

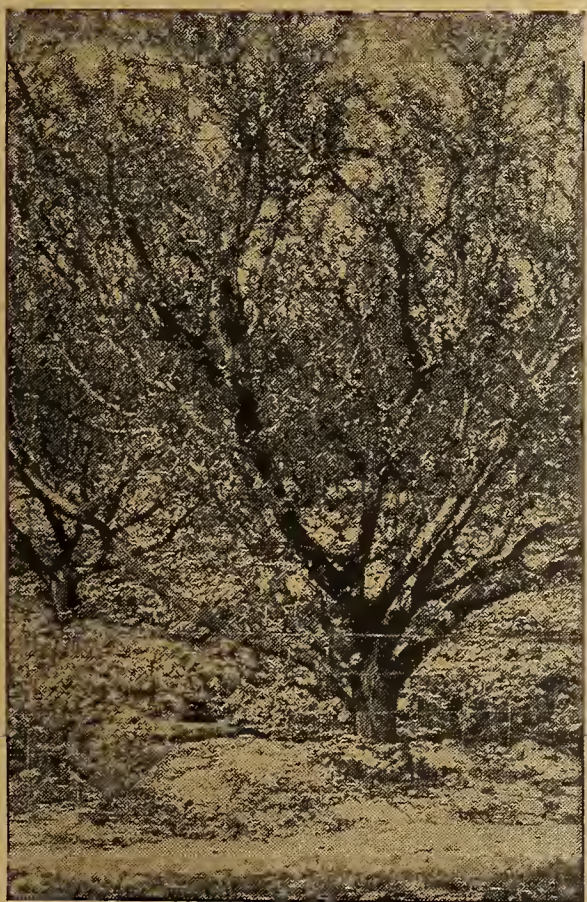
I may as well admit that we hadn't considered the selling end of the peach-syrup industry very seriously. It was a case of try to do something with advertising and direct retail selling, but with no more success than to sell 127 quarts of the syrup at 30 cents a quart, bottles included. We saw that we would have to market it in some other way, so we tried to sell it to three fruit-juice companies. But they were not in the market for peach syrup.

Proved Popular with the Public

FINALLY we tried the ice-cream and confectionery company that operates a chain of ice-cream and candy stores in our State. By dint of much argument and persuasion and by demonstrating that delicious peach sherbet could be cheaply made with the syrup and milk, we at last got the company to sign a contract, agreeing to take 500 gallons of the peach syrup in 100-gallon monthly installments and pay us 75 cents a gallon and return all bottles; provided, however, that the peach sherbet proved popular with their customers.

Thanks to our lucky stars, the peach sherbet made a decided hit with the ice-cream-consuming public, and so the contract stands. The company has called for 200-gallon monthly deliveries, and has sent us a check for the entire 500 gallons. The check was for \$375, and represented some comparatively easy money that we had formerly been feeding to the pigs.

We have about 16 gallons of the syrup left on our hands, but we can make very good use of it ourselves. The syrup that we put into the old vinegar barrel proved to be the "peachiest" tasting syrup of all, but it will have to be bottled and sterilized by the "three-day method" before delivery. [CONTINUED ON PAGE 24]



Low-headed trees lessen loss by wind and reduce harvesting expenses

Living From Ten Acres

Three Years' Returns from Our Colorado Truck Farm

By W. D. NEALE

AFTER living in town for seventeen years; my wife and I concluded to go to a small farm. She had inherited some money and we had saved a little by strict economy. As we desired to reside in Colorado, I went to see a 10-acre irrigated tract situated one mile from a town of 5,000 persons, which had good schools where we might put our boy and girl.

On this farm was a four-room house, uninhabitable, a shed covered with straw for a barn, and a small chicken house. The owner asked me \$2,500 for the place, including water rights.

The land had been rented for four years, and the fertility of the soil was greatly depleted. The last tenant had not received more than \$300 for his crop, and his rent cost \$150. This farm suited my pocket-book better than my judgment.

However, I talked with a man who had resided in the neighborhood all his life, and he said that this was the best piece of ground in that vicinity and it could be rebuilt very quickly with manure. Then he told me that I could get all the manure I wanted from the town stables for the asking.

This made me feel better. I finally offered the owner \$2,350 for the place, and he accepted it. I took possession of this little farm December 1st, after moving my family from the East to the near-by town.

My first work was to tear down the shack of a house. I completed this job alone in a week. Then I let the contract for a six-room bungalow to cost \$1,200 and to be completed by March 1st. I did not have the time to superintend building a home, for I felt I must get to hauling the fertilizer from the town to my land. So I purchased a team, wagon, and harness for \$115 and went to hauling the manure.

I hauled from two to four loads each day in good weather, unloading the manure in small piles 10 feet apart each way, so that it would not leach out before

under the trees in the orchard and protected by them.

I was discouraged, but the neighbors said it was not too late to replant. So I bought more seed and tomato plants and went to work, putting cantaloupes where the beans were planted before. The weather was warm and the replant was soon out and growing nicely.

I had been reared on a large farm back East and thought the cultivation of a 10-acre tract would be like play. I arranged to do some reading and writing in spare time, but was disappointed, for the irrigating, plowing, weeding, hoeing, and odd jobs kept me going from morning until evening. I never worked any harder on the farm in the East than on this 10-acre tract. Yet I greatly enjoyed it.

The manure certainly brought results. The crops were of good quality and splendid yield. I found a market for my fine tomatoes in a near-by city and shipped them in baskets by express.

Cantaloupes were shipped from my home town by a commission man who handled them for 10 per cent on gross sales. The onions were sold at home and to the merchants in a town 10 miles away. The pest known as thrips bothered them some, and the yield was not as large as it might have been. But here are the sales of all the crop:

2,500 lb onions at 4c.....	\$100.00
240 baskets tomatoes at 60c.....	144.00
5 tons tomatoes to canning factory.....	55.00
1,200 crates cantaloupes at 60c.....	720.00
Profit from eggs and chickens.....	41.00
	\$1,060.00

The expenses for marketing the crop were as follows:

40 sacks for the onions.....	\$2.00
240 tomato baskets at 6c.....	14.40
1,200 cantaloupe crates at 11c.....	132.00
Cantaloupe seed and tomato plants.....	16.00
Bean seed.....	3.00
	\$167.40

This gave a profit from the land of \$892.60, which we thought very good. Besides a living for the year, we had enough to purchase a nice surrey for family use.

Pleased with our success of the previous year, I again hauled more manure from town. This time I put on 10 loads, or about 15 tons, to the acre. I concluded to vary the crop a little, so I planted two acres of beans, two acres of cucumbers for seed, three acres of cantaloupes, acre and a half of tomatoes, and an acre of watermelons.

Added Fertility Brings Results

ONE neighbor had cleared \$400 on string beans the year before, and another had done well on watermelons and cucumbers for seed. The season happened to be very poor for tomatoes, cucumbers, and beans. This is the result:

120 baskets of tomatoes at 50c.....	\$60.00
3 tons to canning factory at \$11.....	33.00
300 lb cucumber seed at 25c.....	75.00
600 crates of cantaloupes at 70c.....	420.00
3,000 lb string beans at 4c.....	120.00
2,000 lb of watermelons at 1½c.....	30.00
Profit from poultry.....	40.00
	\$778.00

Total returns from all sources.....

The expenses were:

120 tomato baskets at 7c.....	\$8.40
600 cantaloupe crates at 11c.....	66.00
100 bean sacks at 5c.....	5.00
Labor for picking beans.....	30.00
Thrashing cucumbers.....	5.00
	\$114.40

Even though the profit this year was only \$663.60, by close economy we were able to pay all expenses and have enough in the spring for building a \$150 barn. Although somewhat disappointed with the past year's profit, we began to fertilize our place at the usual time, distributing 10 loads of manure to the acre. Last year we concluded to grow more cantaloupes than any other crop. So we put out six acres of cantaloupes, two acres of beans, and an acre and a half of tomatoes. The harvest was:

1,200 crates of cantaloupes at \$1.10.....	\$1,320.00
200 baskets of tomatoes at 60c.....	120.00
4,000 lb beans at 4c.....	160.00
	\$1,600.00

This was by far our most profitable year.

The expenses to be deducted from the \$1,600 gross returns were slightly less than they had been the first year. Here they are:

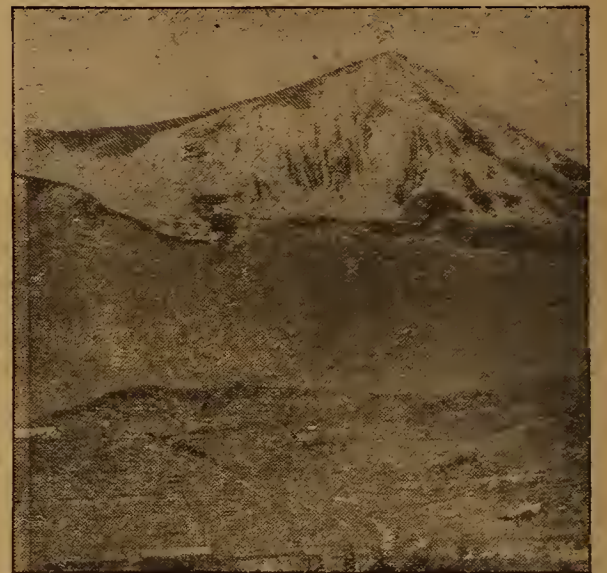
1,200 cantaloupe crates at 11c.....	\$132.00
200 tomato baskets at 7c.....	14.00
140 bean sacks at 5c.....	7.00
	\$153.00

With the profit of \$1,447 the third year we were able to meet all financial obligations and also own another western Kansas farm clear of debt. This year we also built a good poultry house for the hens, utilizing the lumber from the old building I tore away the first year. This will enable us to keep more chickens and thus increase our income.

Mountain Onion Seed

By W. F. WILCOX

MANY seedsmen are turning to Colorado for the production of their garden seeds. The conditions there are specially adapted and favorable to seed production for several reasons, the chief one being that on account of the altitude earlier varieties can be developed.



The land in the valley is irrigated with water from the mountains

In the Uncompahgre Valley in western Colorado, irrigated by the six-million-dollar Gunnison tunnel and canal, there has developed an extensive onion production. But in order to secure large yields acclimated seed is necessary.

W. L. Franklin, who owns a ranch in "Pepper's Gardens," has spent several years in the development of mountain onion seed. To-day he is a large producer for seed houses. Mr. Franklin's seed-growing started through what seemed an unfortunate experience when first attempting to grow commercial onions at an altitude of a mile. His first onion crop of nine acres, grown six years ago, was almost a failure on account of the seed, which was grown farther east. The seed proved to be too late a variety for the climate and altitude and did not mature.

The next year he secured some seed of Chris Picker, a neighbor. Mr. Picker raises onions on a large scale. Mr. Franklin planted this seed, which was more or less acclimated, and also all of the very earliest varieties he could get from other sources.

The season was a warm one for Colorado and all varieties did well, but the Picker stock was two weeks earlier than any of the others.

After three years' experience with many kinds of seed, Mr. Franklin came to the conclusion that the Uncompahgre Valley had developed the earliest variety of onion grown in the United States.

Then Mr. Franklin began to raise small fields of seed for his own use, also selling some to his neighbors, who were willing to pay \$3 per pound for it and later \$1.

This onion seed is now being sold under the name of Mountain Danver onion, and it surely is a winner as a cropper.

Mr. Franklin reckons the cost of production last year was about 25 cents a pound, as the onions planted were worth 50 cents a hundredweight. Continuing he said: "I believe that 1,000 pounds of seed can be grown to the acre by planting 150 sacks of onions to the acre, and at the average price of \$1 a hundredweight for onions the seed can be grown at about 35 cents a pound."

EW



A Colorado orchard. The abundant sunshine favors a fine quality of fruit

time to plow it under. Before the house was completed I had hauled 200 loads of manure to the place. In the meantime one of my horses killed himself by becoming choked with a rope about his neck one night. I felt this was pretty bad luck, but blamed myself for leaving the rope tied about his neck. I purchased another which was better, for \$75.

On March 22d we moved out to the farm and went to housekeeping in our own home. Wife, children, and I were certainly happy and had a feeling of independence we had never before enjoyed. After getting things arranged in the home I put a roof on the shed from the lumber from the old house and made it comfortable for the team.

Frost Destroys First Planting

AFLOW and harrow were purchased from a neighbor for \$10. I also bought a flock of pure-bred White Wyandotte chickens for \$40. An incubator was then ordered at a cost of \$10. By selling a western Kansas farm for \$1,600, which I had bought for \$1,100 two years before, we were able to pay all expenses so far in our farming venture.

On April 1st I began to plow, first scattering the manure on enough land for a day's plowing. I set the plow deep to cover the manure well, so that it might soon become mixed with the soil. Some of the neighbors came over and told me that I was putting on too much manure and would burn the soil up, but when I talked with the old resident he told me I was doing the right thing to rebuild the farm quickly.

After getting my soil plowed and prepared for the crop, I spent a half-day talking with a man who had lived in the community for ten years and had made a success of farming. He told me what to plant and how to plant it. He was a good and willing teacher. I learned from him in a few hours what it would otherwise have taken years of experience.

My first planting consisted of one acre of onions, two acres of tomato plants, six acres of cantaloupes, and a half-acre of beans. All the crop was doing fine when on the night of May 19th a killing frost destroyed everything but the onions and a few beans



A field of seed onions in the Uncompahgre Valley, Colorado

What Moving Meant to Us

Ten Miles and Two Days Through March Mud and Snow

By A RENTER'S WIFE

IT IS a reproach to American agriculture that so many people on March 1st are homeless. We used to read with grief and indignation of the evictions of tenants in Ireland, oblivious of the fact that our American tenant system is as bad as that of Ireland ever was, and not half so good as Ireland's is now. This little picture of the situation, written by a victim of the system—a tenant's wife,—shows a cheerfulness under difficulties that is almost pitiful. But who will deny that, as years pass, this cheerfulness may turn to bitterness under the crushing difficulties encountered by some of our American wanderers on the face of the earth in search of homes? [Editor's Note.]

IF IT hadn't been that the Cummings family, who moved from Iowa by train, had not been promised possession March 1st, the Kirkpatricks would not have pushed the Bridges and the Bridges pushed the Franks and the Franks pushed us to vacate that same day. It was a wholesale transferring to different farms. Thus we advanced March 1st under adverse circumstances, as did all other movers, leaving behind the place that for the past year we had honored with the name of "home," together with improvements we had been obliged to provide to surround ourselves with just reasonable comforts. Altogether we had spent nearly \$200 on improvements which we were forced to leave behind, in addition to nearly half a ton of coal, which we decided to donate to the Franks rather than haul it through the March mud, and, as you will see presently, it was a wise decision.

There are five of us—my husband, three children (one being our oldest boy, John, who will figure in this story), and myself. I was to ride Jinnie Mule, the family pet. She is a little larger than a jack rabbit, with ears in the same proportion as that animal. Her left forefoot is crooked, her color a handsome brown, and she has an obliging gait similar to the glide of a canoe in placid waters. Added to this is a willing spirit.

I had neither used her nor the side saddle for several months, and found too late that the side saddle had been put somewhere in the bottom of one of our two loaded wagons. So I buckled a padded blanket over her, to which were attached stirrups from a man's saddle.

With a kilt woolen skirt made into impromptu knickerbockers I was well equipped for the trip after I put on my hood, jacket, and mittens. A Kansas March suggests muddy roads, but this March emphasized the great rolling, chunky mud, the wagon-hub mud, the loblolly mud. It beat all past records of March mud history. But we were compelled to give room to the Franks, and on the morning of this particular day there were great moist, feathery snowflakes tumbling down through the air, thick as grasshoppers in a hayfield—not cold, only wet.

We left a good share of our furniture in one room of the house, to come after when the roads were better, and the Franks were likewise willing to keep our cow for a while. She simply could not travel in the mud. Our two wagons were lightly loaded with chickens, bedding, cook stove, necessary provisions, utensils, and a few chairs.

I took the lead, trusting to Jinnie Mule's capabilities. I carried a long, light pole to test suspicious mudholes for wagon travel. My husband and two smaller children were in the first wagon, and John drove the rear team. We had now traveled one mile slowly but fairly comfortably. It was ten miles to our new "home" on Dunlavié farm in Doniphan County, and we hoped to make it that day.

Camping by the Roadside

AS WE ascended a hill, the second one on our route, Jinnie Mule took the attitude of a fly trying to get off sticky fly paper. "Hard pulling," I called back, and Jinnie Mule broke out in a sweat. Robert—for I must tell you my husband's name—rested his team, but when the beasts began to pull again they were unequal to the task. By doubling up the two teams we finally got the wagons over the hill one at a time. They rolled down the descent of the hill, tumbling a small truck farm on each wheel. The next half-mile was sloppy mud and easy draft. By noon we were two and a half miles on our way. We stopped for lunch and to feed and rest the weary teams. The patient beasts drooped their heads, too spiritless to eat for a while.

We had been traveling an east and west road, and now turned to the north, where the drifts had been deeper and the roads were even worse. A cobblestone hill in good weather is a traveler's abomination, but under existing circumstances it was rest to the weary. We had one cobblestone hill and managed to get up it without difficulty.

By this time we had decided it was no use to ride

ahead to investigate the road. Instead, I rode beside the wagons, first one and then the other, and used a bed slat to get the excess mud off the wheels. By the time we had covered half the distance we knew that a night in the open was our fate. We crossed a bridge over Independence Creek, and then made our plans. Drawing the two wagons to the side of the road, we attached the two tarpaulins that covered the loads to the fence posts, thus making a sort of tent, with the tarpaulins hanging down on the wagon side as a screen. We also took from the wagons a coal-oil heater, chairs, bedding, and some provisions.

We melted snow and boiled water on the heater. Then, with boiled ham and home-made bread, we feasted. Appetites? I should say so. Even the children were ravenous. The horses excited our greatest sympathy. We fed and blanketed them and tethered them under the protection of the bridge, which was fair. Jinnie Mule was wrapped in a laprobe. Three of us slept on a mattress supported on chairs. Robert and John rolled up in blankets placed on straw taken from the wagon bed. And how we slept! Not one of us rolled over during the night. It was broad daylight and the glare of the bright sun that roused us. Putting shoes on, our toilets were complete.

"Wouldn't fried meat this morning be appetizing?" suggested my husband. So I broiled slices of ham, which was tantalizing while cooking and equally good when tasted. Then without delay we broke camp for another day of slow, weary toil through the mud. "On, on, patient beasts," we urged as we had done the day before. In the afternoon the sky clouded and soon began to cast down its white ballast. At evening, when we arrived, the snow was falling fast. We shook ourselves from our weariness, unlocked the door, and again we had a roof over

our heads for the year to come, a place to warm and a place to call "home," though to a tenant that name is a mockery. The oil stove is ablaze, the horses and Jinnie are made comfortable, and soon various articles are adjusted for the night. Tacked on an inner door in a conspicuous place we find this card, left by the Shaws who had just moved out: "Will you please care for our cow till the roads dry, and oblige?—George Shaw." We did, for only a tenant can truly realize the plight of another tenant when forced to move the first of March.

Now, although we took our medicine with good grace, and made just as little fuss as possible—for what good would that have done?—there is another and a serious side to this question of tenant-moving. Totally aside from our few hundred dollars' loss in the permanent improvements we left behind us, again I say, that the one-year lease system is blasting the hopes and the futures of thousands of farm families who by force of circumstances are compelled to move, not from choice, as do the Arabs, but under the driving power of a wrong system. It depletes the soil, opposes permanent improvements, and cheats the oncoming generation out of a natural social and com-

munity life as well as a true home. How much better it would have been for these families and also the farms worked by them if, instead of moving, all had stayed, as farmers do in Europe, on the same farm generation after generation. Thus each might make it a home indeed, building up the fertility, loving the old house, and becoming a part of the substantial life of the countryside.



The land of the settlement responds bountifully to good tillage

Satisfied Settlers

By S. R. WINTER

TO RAISE useful men and women as well as good vegetables is the object of a colonization plan operated in eastern North Carolina. The plan was started ten years ago by Hugh MacRae, who inherited 1,200 acres of truck land from his father. Now the colonization plan is operated on several thousand acres.

Within the reach of all the families of St. Helena, one of the settlements, an amusement pavilion, 30 feet wide and 60 feet long, was built at a cost of \$700. The interior of the pavilion is one room with a floor suitable for dancing.

The pavilion is a common meeting place for the colonists. The Grangers' Society, a chartered organization of Italian farmers, holds its meetings in the pavilion. Mass meetings are held there too, and it is the gathering point on festival days.

Seven families of Italians—coming from northern Italy—constituted the original colony. They settled twenty miles from Wilmington, and named their colony St. Helena in honor of the Italian queen.

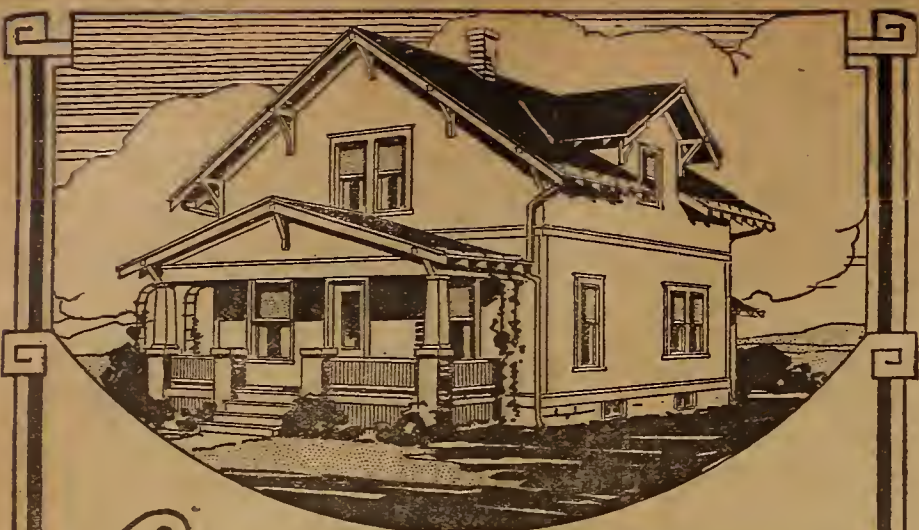
The combination of land capable of high production and nearness to market contributed to the welfare of the colony. Carloads of strawberries were shipped, from one-half acre \$1,800 worth of lettuce was marketed, and immense vineyards of Concord grapes brought rich returns to the Italians.

With the clustering of families of the same nationality into a colony, there came an awakening of the social spirit. Their inclination for play and recreation was quite as intense as had been their ambition to acquire a home. They found satisfying expression in the organization of a brass band.

Since its establishment in 1905 the St. Helena colony has been constantly reinforced with other emigrants from both northern and southern Italy. Approximately 500 Italians are happily and prosperously situated at St. Helena. Within the last two years the development company has adopted the policy of the formation of a cosmopolitan community of farmers at St. Helena. Other nationalities, possessed of a home-owning, home-loving instinct, have been invited to this favored spot. Consequently, Poles, Hungarians, Hollanders, and recently Belgian refugees, have been allotted homes and ten acres of ground to the family.



Moving out after a year, so that someone else may move in for a year. One reason so many families are homeless on March 1st



You Have the Time Now to Work Out Every Detail

Before the Spring rush comes, let us work with you on the details of your new home. From our Home Books you can pick plan suggestions of convenience and comfort. In them you will find the latest designs of

1866 CURTIS WOODWORK

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Now, too, you have time to consult your lumber dealer. Get him to show you some Curtis Woodwork. Notice the quality of wood, thenicetiesof workmanship.

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At your dealer's, you can see the big Curtis catalog filled with hundreds of designs—correct in proportion, taste and workmanship.

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They are "Better Built Homes," Vol. II—\$2700 and under; Vol. III—\$2700 to \$4500.

They show floor plans and exterior and interior views. They embody the best in construction that we've run across in thousands of homes. The coupon brings your choice.

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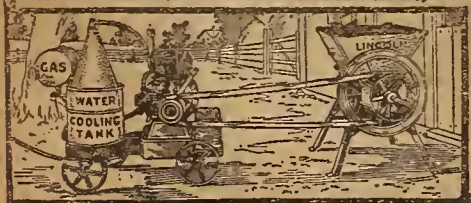
Cushman Light Weight Engines

The all-purpose farm engines, for farmers who want an engine to do many jobs in many places instead of one job in one place. Built light, built right. Weigh only about one-fifth as much per horsepower as ordinary farm engines, but so well built, balanced and governed that they run even more steadily and quietly. No loud explosions, no fast-and-slow speeds, like old-fashioned heavyweights, but steady and quiet like automobile engines.

Before Buying Any Engine Ask These Questions

1. How much does it weigh? If it weighs more than 60 lbs. per horsepower, why? The old-time reason for heavy weight was to keep it steady, but if an engine is well balanced, it doesn't need pig iron to hold it down.
2. Is it Throttle Governed? A throttle governor insures steady, quiet and economical power.
3. Does it have a good carburetor? The Cushman has the Schebler. Many manufacturers of farm engines won't pay the price for a good carburetor, as they think the farmer doesn't know the importance of it.

Below is shown 4 H. P. Cushman on light truck, with water cooling tank and gas tank in front. Engine weighs only 190 lbs. Easy to pull around from job to job. Used on Sinder in harvest to save a team, and in wet harvest to save the crop.



Above is shown 8 H. P. 2-Cylinder Cushman mounted on 4-hole corn sheller. Engine weighs only 320 lbs. 2 cylinders give it very steady power. May also be mounted on hay press or corn picker, besides being used for all other farm work.

Floyd Whitcomb, Crawford, Kans., writes: "I have used your 8 H. P. with my 4-hole Sandwich Sheller and shelled 38,000 bushels—over 2,000 bushels a day. It takes care of wet and tough corn same as dry."

"In your advertising you say the Cushman is built to run without trouble, and it will come nearer doing this than any other engine on the market. It runs cool all the time. The upkeep has been practically nothing and the fuel consumption very small."

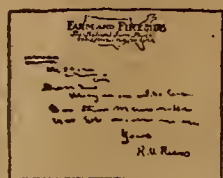
"Lots of people talk about it being so small, but why buy an engine that weighs 3,000 to 4,000 lbs. to do the same work a 320 lb. engine will do?"

Cushman engines are not cheap, but they are cheap in the long run. If you want an all-purpose engine, that will run for years without trouble, write for our Light Weight Engine Books. Mailed free.

CUSHMAN MOTOR WORKS
807 No. 21st St. Lincoln, Nebr.

The Editor's Letter

Does Your Daughter "Shy" at Farm Work?



"DEAR EDITOR,"

writes Mrs. M. T. Dickey, who evidently has seen farm life at close range, "I

see Frances Albro of Oklahoma is asking for articles about keeping girls on the farm. Let me give you a few reasons why they want to leave. First, they live in a neighborhood where they seldom see any men. Young men I mean. They see a stock buyer once in a while or a married man that Pa brings in for dinner, maybe on washday.

"Second reason: Maybe Mother shows what farm life has done for her. She was once young and full of hope, but now her hair is skinned back like a stocking over a cup, with maybe some grease rubbed in to keep it smooth. And if she still has a little of the pride of long ago left, she may dust her face from the flour can, but that is not likely, for Pa would say that was all foolishness."

"Her hands are calloused and crooked from cleaning out the hen house, slopping pigs, milking cows, hoeing in the garden, and doing a few other little chores. They look more like monkey's hands than a human's. Poor Mother is getting old. Daughter is wanted to take up the burden."

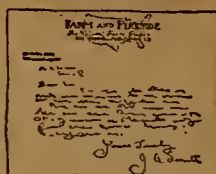
"But she shies at it. Do you blame her? Why not live in a neighborhood where there are schools and churches? See that the children attend them. Let them know they are at liberty to bring home their company without fear of finding Mother churning on Sunday or Father shoeing horses. Give them a variety of good reading. Give them a home they need not be ashamed of. Give them a mother and father who do not quarrel and scold each other, but who show they knew what they were doing when they married. Give them amusements. That we all must have. Yes, give them all this and more. Give them love from a big heart and a broad mind."

Quite a sermon! And remember it comes from a farm woman, not from a dissatisfied girl. The conditions described are of course extreme, but her appeal in behalf of congenial homes for farm girls reaching womanhood has so much truth in it that the bluntness of the remarks are easily pardoned.

For the everyday atmosphere of the home has an influence on all members of the family so far-reaching as to be hard to calculate. Certainly, the daughters in an unhappy home have but a scant opportunity to capture the hearts of desirable young men, except out of pity. And that is rather a flimsy foundation for true love. And an equally unfortunate effect is the influence on small children in the home. Perhaps a few illustrations will make this clear.

IN a certain unfortunate family the wife is dissatisfied with her home, envious of her neighbors, and indifferent to her husband. He, on the other hand, gives her all the comforts and pleasures he can afford and showers her with sincere attentions. They have one child, a daughter just entering her teens. This daughter has unconsciously copied the mother's attitude toward her father and the father's attitude toward her mother. Thus the daughter is rude to her father even in the presence of strangers; but, on the other hand, is a model of filial affection toward the mother. The child is perfectly innocent in the matter, but as she grows older she will undoubtedly retain the habits formed in early life. And as the family life is in constant discord, this daughter is already seeking her pleasures outside of the family circle.

In another family, quite of a different kind, there are four children. Husband and wife are both along toward middle age, but are still attentive to each other. He is planning to give his wife electricity in the house so she can have an electric flatiron which will enable her to have a cool kitchen in summer and will shorten her work. It will also be the end of cleaning lamp chimneys. When he is around he opens windows for her, carries water, and does other little attentive things which she is perfectly willing and able to do. Result—the children are perfectly con-



tented. They like the farm. They are unselfish and considerate of others. And I think you will agree with me

when I say that in future homes of their own they will do their full share toward making the family life congenial.

Sensible farm girls know that if the heart is light, hard work is not going to mar their beauty. When the meals are eaten in an atmosphere of congenial talk and understanding, the work of preparing them is much easier than when the wife looks forward to nothing but silence, broken only by the scraping of forks on empty plates and the demand for another helping.

WHEN I received from a young man in Colorado the letter that follows, I thought it might do a lot of FARM AND FIRESIDE folks good if they could read it. "I noticed with considerable interest," he says, "the Editor's Letter about the young man who asked the best way to use \$2,000 in securing a farm and home of his own. That young man ought to face the world with a song in his heart. I, too, had the longing to get a home, but here in Colorado much land under irrigation sells for \$300 an acre. Little chance, apparently, to get started, with not a cent of capital! Yet last March I had a chance to get a little ranch of five acres and a four-room house, horse, wagon, and some small garden tools for \$1,200."

"I am a rural carrier, formerly on a daily route, but lately transferred to a tri-weekly. What was I to do with the three days on my hands?"

"I saw the rare chance. The tri-weekly route and this little place would make an ideal combination. Several misfortunes had swept away all my savings, but I had health, youth, confidence, and some friends. I borrowed every cent of the \$1,200 on my word and the place itself, paying 10 per cent interest. Just a short time now and I'll have it paid for."

"A little self-denial, some sacrifices, and the prettiest little ranch in the Grand Valley will be mine. I have made mistakes—costly ones. But I am hard at work and the future looks bright. But, unlike that other young fellow, I am not blessed with a wife 'picked out.' I am twenty-six years of age, and am 'baching' without even a life companion in sight. With all my work and cooking, I get discouraged at times, but when I think of the opportunities of Midget Ranch and when my favorite bird, the meadow lark, begins at daybreak to sing his happy song and I view the Colorado sunrise and the mountain scenery and valley at my door, I can't be blue very long. All is just sunshine and hope, and when I find Her my happiness will be complete."

You need not be told what kind of a home life this young man had. You instinctively know it was congenial. His reference to the meadow lark, his courage in shouldering the debt, alone, his respect for the opposite sex, his serious desire for a home—all show a character that reflects the right kind of atmosphere under the parental roof.

As a means of making farm homes congenial, good reading, amusements, selection of a good neighborhood, a big heart and a broad mind have all been mentioned. Let me suggest the value of little trips to near-by points of interest, picnic excursions, to include all the family, a few good musical instruments in the home, and family discussions of future plans. If dogs or other pets are kept, have them good ones. Let one of the daughters plan the vines, shrubbery, and home surroundings. The older sons should be able to manage the construction of concrete walks. Assign some permanent improvement to every member of the family. For how can the home atmosphere be other than congenial when it is based on a mutual desire to make the home a beauty spot which they may enjoy themselves and to which they may freely invite their friends?

The Editor



Automobiles

Remove Radiator Sediment

By W. V. Relma

DURING the winter a great many difficulties arise which make the life of the motorist an anxious one. The matter of the overheated motor is one trouble that will appear. As it will be necessary to run upon low speeds for longer periods than during the summer time and as alcohol anti-freeze is largely used there will be a strong tendency for the motor to overheat. If the carburetor mixture is carefully watched and made as thin as possible, it will prevent the overheating to a large extent when running upon low speeds.

A great many drivers will start upon a rich mixture, which facilitates starting, and will continue to run upon the same mixture with consequent overheating when the motor is called upon for long-continued low-speed work.

A clogged radiator adds to the difficulties mentioned before. Many drivers never flush the radiator, and the constant accumulation of dirt from the filling from all kinds of pails finally injures its efficiency. Carbonate-of-soda solution will effectively clean the radiator. The soda should be dissolved in soft water in the proportion of one pound of soda to a gallon of water. This will dissolve the accumulated radiator sediment and restore the original efficiency.

Useful Age of an Auto

By Carlton Fisher

"WHAT is your opinion of second-hand automobiles, and how many years will the average new car of standard construction give satisfactory service?" This question is asked by an Ohio reader who is considering the purchase of a car.

A used car is in many ways similar to a used horse. Its worth depends on the kind of usage it has had. One owner of a used car has driven it over 5,000 miles in a season with less than \$25 worth of repairs, including carbon removal.

He used good oil, kept the car clean and the body well waxed, and the car performed better and looked practically as well at the end of the season as when he purchased it. Another owner of a used car paid out for repairs nearly as much as it cost, and he regrets that he didn't get a new car.

The first man took pains to post himself on automobiles, and selected a good used car and then by good care and good driving he got service from it, probably as much service as some get from a new car. The second man judged his purchase from outside appearance, with little thought of the condition of the engine and running gear. He bought a "lemon," and his experience was costly.

The number of seasons that any car may be expected to give service also depends on the care it receives. A new machine, when properly handled, will run about 10,000 miles without requiring much attention. After that it will

need to have some bushings replaced, bearings taken up, and possibly a few extra parts. It should then be good for about 10,000 miles more. By the end of that time it will need a more thorough overhauling.

In the past the changes of design have been so marked that cars over four or five years old are now generally dismantled and converted into trucks or delivery cars. What the future will be is a matter of some speculation, but I do not look for as rapid changes as the past has shown.

Mechanically there is no limit to the age of an automobile, for if worn parts are replaced the machine will give service for a lifetime. A short time ago a California car owner made a trip over the Lincoln Highway to New York with his machine which had already been run 47,000 miles. Aside from a few changes of tires he encountered no trouble, and the car is still running.

But from a practical viewpoint, when a pleasure car is four or five years old, most owners prefer to trade it in for a new one with later improvements, and let the dealer overhaul the old one and dispose of it as he sees fit.

Fresh Oil—Low Repairs

By W. B. Collins

COMMERCIAL gasoline, as secured from the average auto-filling station, contains small quantities of water, kerosene, and other impurities. These are usually in too small amounts to interfere with the successful running of the machine, but in time a considerable quantity of such impurities accumulates in the crank case and reduce the lubricating value of the crank-case oil.

The oil furthermore wears out as the result of heat, friction, and chemical disintegration. Although the instructions which come with a car advise the owner to drain off the old oil every 1,000 miles and replace with fresh oil, these instructions are not always heeded, under the false conclusion that as long as there is oil in the crank case there must be lubrication. Hence, burnt-out bearings, fouled spark plugs, worn cylinders, and carbonized motors are the result.

The inexperienced car owner sometimes prides himself on his low outlay for lubricants, little realizing the high price he must eventually pay for a premature overhauling. Use good oil and plenty of it; drain the crank case at least once every 1,000 miles.

Power from Auto

MANY car owners have asked whether there is any practical way to make an automobile do belt work during the winter and early spring, when the car is usually idle. There are a number of such devices which are practical for light work or for reasonably heavy work for short periods of time.

Some have a belt pulley driven directly from the crank shaft; other power devices are driven by means of the hind wheels. One of the simplest consists of a frame that is slipped in back of the car in such a way that the hind wheels are slightly elevated, with the tires resting on two small wheels on the same shaft with the driving pulleys. The picture shows this device driving a corn sheller. While an automobile will probably never be an actual competitor of the small gas engine for odd jobs about the farm, there is undoubtedly a field for devices of the kind referred to. And instead of having any injurious effect on the car, the frequent running of the motor will keep the parts limbered up and prevent the annoying sticking of the pistons so common after several months of idleness.

\$1150 F. o. b. Racine

For Mitchell Junior
120-inch Wheelbase

Mitchell
SIXES

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For 7-Pass. Mitchell
127-inch Wheelbase

Now Also An \$1150 Model

With Nearly All the Mitchell Extras
A Doubled Output to Meet a New Demand

Thousands of men have wanted a car with all the Mitchell extra features. But they did not want a car so big and impressive. They did not want a 7-passenger car.

We have built for them the Mitchell Junior—a Mitchell Six in little smaller size. Its 40 horsepower is ample for five passengers. Its 120-inch wheelbase gives plenty of room for five—more than most makers give.

The \$1150 price gives all of the saving to the man who doesn't want extra power and size.

Last year we sent out thousands of these cars before announcing this new model. And Mitchell Junior has proved itself as perfect as the larger Mitchell. So we have more than doubled our factory capacity, to build as many Mitchell Juniors as we build of the 7-passenger Mitchells.

Hundreds of Extras

Both of the Mitchells embody hundreds of extras, paid for by factory savings. They give you at least 20 per cent extra value over other cars in their class. All because John W. Bate, the great efficiency expert, has cut our factory costs in two.

There are 31 extra features—things which other cars omit. On this year's output these extras alone will cost us about \$4,000,000.

There is much added luxury. We have added 24 per cent to the cost of finish, upholstery and trimming. That is all paid for by savings made this year in our new body plant.

And there is now 100 per cent over-strength in every vital part. That is, every part is twice as strong as need be.

The evidence is that this double strength makes the Mitchell a life-time car.

Twice as Strong

The Mitchell standard for many years has been 50 per cent over-strength. Under that stand-

ard Mitchell cars have proved marvels of endurance.

Two Mitchells that we know of already have exceeded 200,000 miles each. Seven of them have averaged 175,000 miles each—over 30 years of ordinary service.

But in 1913 Mr. Bate spent a year in Europe. When he came back he started out to double our margins of safety—to more than match the highest European standards.

It has taken years to do this. But we announce this year this double strength in every vital part.

Over 440 parts are built of toughened steel. All parts which get a major strain are built of Chrome-Vanadium. We use steel alloys which cost us up to 15 cents per pound. And all the parts on which safety depends are made oversize.

One result shows in the Bate cantilever springs. We have used them for two years, on thousands of cars. And not one spring has broken.

That one fact will illustrate what this extra strength means in every vital part. For you know how springs break under shock.

Exclusive Values

These extra values are exclusive to Mitchell cars. No other factory in the world could include them at the Mitchell price.

This model plant, covering 45 acres, was built and equipped by John W. Bate. Every machine is adapted to build this one type economically. The methods employed here have cut our factory cost in two.

That is what pays for these extras. That is what pays for this vast over-strength.

Now a new body plant—building all Mitchell bodies—saves us a vast sum more. That goes into luxury—into heat-fixed finish, into rare-grade leather, into countless dainty details. The latest Mitchells are the handsomest cars under \$2000.

Go see these extras, which are numbered by the hundreds. See what they mean in a car. You will not want a fine car which lacks them.

There are Mitchell dealers everywhere. If you don't know the nearest, ask us for his name.

MITCHELL MOTORS COMPANY, Inc.
Racine, Wis., U. S. A.

TWO SIZES

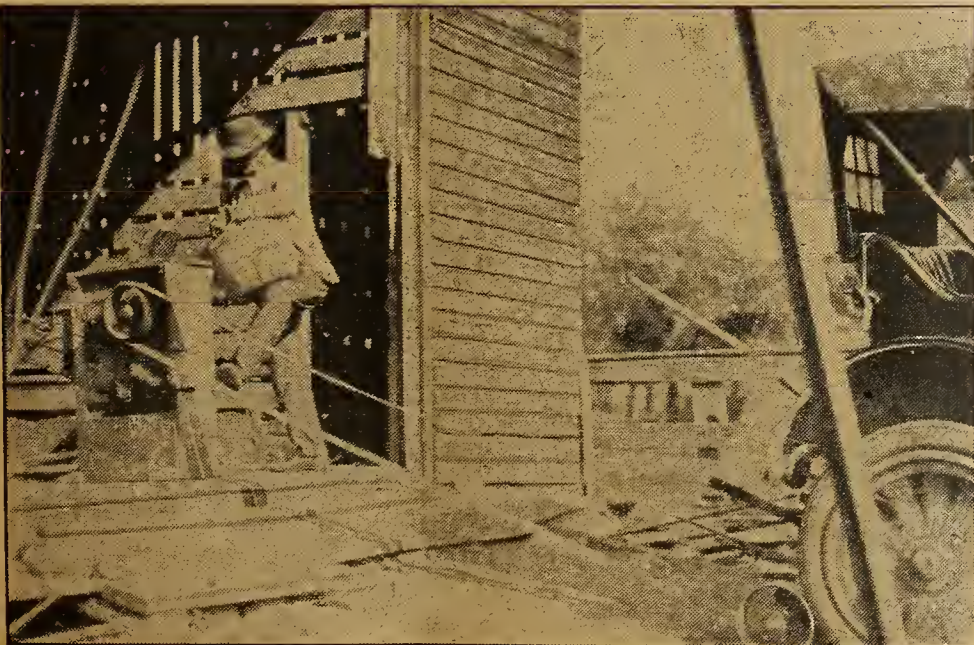
Mitchell—a roomy, 7-passenger Six, with 127-inch wheelbase. A high-speed, economical, 48-horsepower motor. Disappearing extra seats and 31 extra features included.

Price \$1460, f. o. b. Racine

Mitchell Junior—a 5-passenger Six on similar lines with 120-inch wheelbase. A 40-horsepower motor—1/4-inch smaller bore than larger Mitchell.

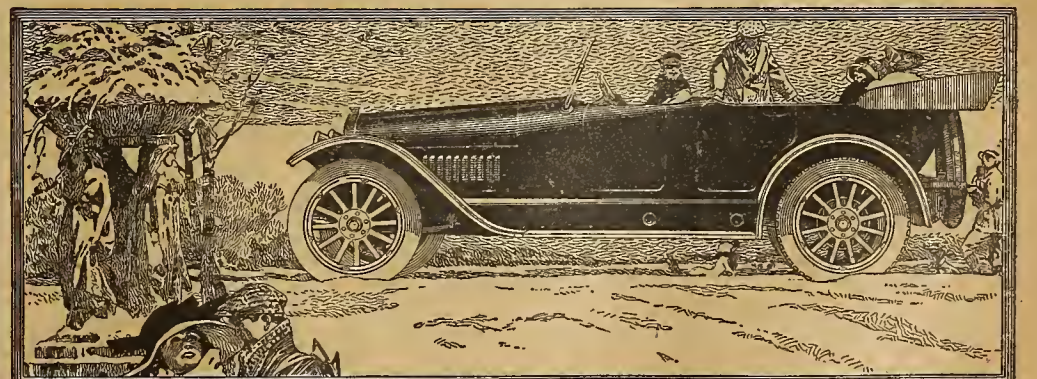
Price \$1150, f. o. b. Racine

Also all styles of enclosed and convertible bodies. Also demountable tops.



Shelling corn by automobile power. This is one of several devices that enable the family car to do useful farm work

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FARM and FIRESIDE

THE NATIONAL FARM PAPER

Harry M. Ziegler, Managing Editor

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February 17, 1917

Uncertain Freight Service

A SMALL bill of goods ordered by a reader last December was promptly shipped by freight. But though the distance was only 600 miles the goods were six weeks in reaching him. A complaint to the local freight agent gave little satisfaction. A shortage of cars with no relief in sight was the courteous but unsatisfying explanation. In this particular case the freight happened to be some well supplies that were not urgently needed.

But as spring approaches with the usual large shipments of nursery stock, cream separators, milking machines, manure spreaders, implements, and automobiles, complaints of late delivery seem likely to become a national clamor. A dealer in silos who had an unprofitable business last year because of the small corn crop, locally, says that already orders are beginning to come in, and he looks forward to almost a double business this year.

So in ordering articles that will soon be urgently needed, such as spray materials, seeds, and tillage implements, place orders now to insure delivery. And as uncertain freight service is likely to be with us for months to come it will soon be time to think about hay and grain necessities as well.

Friends of Daylight

IF THE plans of the New York "Daylight Saving" Committee carry, farm women who take summer boarders will no longer have to get two separate breakfasts. Instead of an early one for the farm folks and a later one for the boarders, all will sit down together at the early breakfast. Let me explain.

Last year the Governments of most of the warring nations in Europe, also Norway, Sweden, and Denmark, found that by ordinary clocks and watches set an hour ahead during the summer months they gained various benefits. All those nations rose an hour earlier in the morning and naturally went to bed an hour earlier at night. In Vienna alone the saving in the cost of illuminating gas used was \$142,000. But even aside from this saving, which was but one of many, the people liked the change in time for other reasons.

By beginning work an hour earlier in the morning, they finished many of the harder tasks before the heat of the day, and there was an additional hour for recreation between the end of the day's work and sunset. The New York "Daylight Saving" Committee is trying to introduce the same plan in the United States. It is a good movement. Farmers have known from the dawn of history that the early hours of the day are the best hours, especially in summer. Look at the farm animals and birds. Every rooster in the country has been trying to tell us about it since he learned

to crow. The daylight-saving campaign suggests that some city folks too are realizing that earlier hours are a step toward more natural living.

If the plan carries, the only difference noticed in farm homes will be the coming of the mail an hour earlier and, as already suggested, the boarders will perhaps be down to breakfast.

Plowshare Wealth

LESS than half the usual acreage of ground was plowed last fall, a fact which adds unusual importance to field operations this spring. There is a consequent tendency to conjecture how this will affect 1917 crops and market conditions. The fascination of the future leads to a good many surmises on what crops to put in, and how many acres of each.

Experienced farmers who have until now prided themselves on being cautious and conservative are more than likely to put in large acreages of grain, potatoes, and various special crops on the basis of last year's small-scale successes. Indeed, the likelihood of overproduction in any line seems remote.

But whatever our plans, or however promising the future may appear when it comes times to put in the crops, let us not make too hasty use of the plow.

A good, conscientious job of plowing doesn't show much, but, like money out at interest, it works for you diligently in unseen ways. In the face of last fall's shortage of new seed bed, plenty of land put under the plow this spring seems to be a sure method of increasing gains and mitigating any possible losses.

Welliver on Firing Line

JUDSON C. WELLIVER, for many years FARM AND FIRESIDE'S Washington correspondent, has sailed for the war zone to be in charge of the London office of the New York "Sun" for the rest of the war and during the peace negotiations. Glad as we are that Mr. Welliver is to have this interesting experience, and proud as we are that one of FARM AND FIRESIDE'S regular contributors should be chosen for so important a post, we dislike to lose Mr. Welliver's services for our readers, even for the time being.

But FARM AND FIRESIDE men have a habit of being called on when there is a big job to be done. It is only a little more than a year ago since Herbert Quick left us to become a member of the Federal Farm Loan Board, and now Welliver goes to Europe. We are proud of our losses!

Until Mr. Welliver's return, the Washington Letter will be written by Mr. John Snure, an able and experienced Washington correspondent, whose first letter appears in this number.

Personal Preparedness

EVERY farmer ought to believe in preparedness—the kind of preparedness that provides tested rather than "guessed" seed corn; that sees that all farm machinery is carefully looked over and the badly worn or broken parts replaced before the beginning of the rush season; that makes ready a supply of bolts and taps, extra lap rings and clevises, singletrees and at least one extra pair of doubletrees. Man labor and horse labor are too expensive and time too precious to take chances of risks which might easily be avoided.

Successful farming is largely a matter of good judgment and of "taking time by the forelock." There is a vast difference between the farmer who pushes his work and the farmer who is continually letting his work push him. Their mental states are different—the one chaos, clutter, and confusion, while the other is characterized by plan, purpose, and power.

Right now, before the busy season comes, is the time to put into effect this

farm preparedness program. Do it. Don't say that you haven't time to look after these things. Think you have; and the chances are that you have. In the world there are more folks who are busy because they put things off than there are men who put things off because they are busy.

When the teams are busy in the field, and when the planter should be kept going every hour of the day, the loss of time means a loss of money—and often a loss of temper. So let's insure against these things by taking out an agricultural preparedness policy, which means to get ready, so thoroughly to anticipate the rush that there will be no rush.

Binder-Twine Prospects

THE Mexican binder-twine trust, officially known as the Comision Reguladora del Mercado de Henequen, is still dictating prices for sisal, the raw material from which binder twine is made. On November 1, 1916, the International Harvester Company contracted for approximately one tenth of all the sisal grown in Yucatan, Mexico, paying the Comision's price of 10 cents a pound. This is said to be the largest sisal sale on record, involving over \$4,000,000.

In former years sisal fiber could be bought for about seven cents a pound. Rumors from Yucatan headquarters lead cordage manufacturers to expect a still further advance, possibly to 12½ cents. The Yucatan growers have practically a monopoly on the sisal crop, which does not thrive in this country, but a ray of hope comes from southern California, where tests have been made of New Zealand flax.

Charles Cristadoro, a former contributor of FARM AND FIRESIDE, has found that New Zealand flax yields a fiber nearly twice as tough as sisal and entirely adapted to binder-twine manufacture. This flax, of which he has sent us a sample, has been successfully grown as an ornamental plant in the West, thrives on ordinary soil, and will withstand a temperature as low as 10 degrees Fahrenheit. It matures from roots in two years, and may be expected to yield about 15 tons of leaves per acre, equivalent to two tons of fiber. The International Harvester Company has offered to buy 10,000 tons of New Zealand flax fiber at sisal prices, but as far as can be learned there is not a ton of it available in the United States. More will be said on this subject as developments justify.

Our Letter Box

National Farmers' Convention

SECRETARY I. M. WRIGHT of the National Farmers' Association announces its next annual meeting February 21, 22, and 23, 1917, at Kansas City, Missouri, with headquarters at Hotel Savoy. This association, of which every farmer may consider himself a member by virtue of his occupation, held its first annual convention on the same dates last year. This year the program will deal largely with better methods of marketing, and will include government officials among the speakers.

All farmers are invited. Programs and detailed information may be secured from I. M. Wright, secretary, Waukesha, Wisconsin.

Favors Wheat Embargo

DEAR EDITOR: In all the years I have been a subscriber to FARM AND FIRESIDE I have found fault with nothing until I read your article on the wheat embargo. You have always seemed broad-minded and fair, but in this instance it seems mighty like truckling to class rather than discussing the true merits of the proposition.

You cite the relative price of copper, steel, and iron in justification of the position you take. Comparatively few people are in the market for those products, while every mother's son of us is in the market for bread, and have to have it.

I don't believe that the farmers have bristles on their backs and want to hog the earth just because the conditions of

the times give them the opportunity. I am a farmer and am in favor of an embargo on not only wheat but all the rest of the necessities of life, such as corn, oats, potatoes, beans, and sugar—either an embargo or a price placed by the Government to stop speculation on the things that enter into the daily life of the people. It is speculation and not demand that has inflated prices.

EUGENE ZELLERS, Missouri.

Studies Stump Roots

DEAR EDITOR: In the November 18th issue of your paper, Andrew Mattern has a letter about increasing land values by taking out stumps and making the rich ground available for producing crops. In clearing land of stumps it is well to bear in mind that each variety of trees has a different form of root growth which then differs with the change of soil conditions. In order to move stumps with the greatest dispatch and with the least expenditure of money and muscle, the form of each variety of stumps requires that whatever force is used to get them out must be applied where the stump offers the most resistance. For example, in taking out large branching rooted stumps, the dynamite should be distributed about the stump so as to lift against or break the largest roots. Again, in dealing with long, top-rooted trees, a single shot deep down in the top root will cut the top off. A strong charge will throw out the stump, while if it is desired to economize in the use of powder, a light charge may be used to weaken the bottom of the stump, and a team hitched to a 12-foot pole about six inches in diameter, fixed with a big sharp hook set in like a cant hook three feet from the end. If this is dragged up to where the hook is near the stump, it takes no time to turn the hook over to fasten in the stump, and then drive around as in an old-fashioned sorghum mill. The dynamite has softened the ground and there is nothing to hold the stump.

R. F. VANN, North Carolina.

R. F. D. Suggestions

DEAR EDITOR: We have our mail box on a post next to the milk platform so the carrier can leave packages that are too large for the box on the platform. We do the same when sending large packages. A shelf could easily be placed on the same post as the box if desired. If a package is insured, the carrier, of course, has to drive in to obtain the signature on the receipt.

We keep a zone map, a table of rates, and a pair of scales so that we are able to affix the correct stamps or put the exact amount of change for sending in the box. This saves both the carrier's time and our own. When we wish to send an order, we put the application blank, properly filled out, in the box. The carrier calls when he comes, and by the time someone gets out to the box with the money and letter he has the receipt ready and can drive on without waste of time.

MRS. E. A. BACKOFEN, Michigan.

It's the Farmer's Inning

DEAR EDITOR: There is a great deal said these days about the high cost of living, and a great cry about boycotting some of the most necessary food products. Why do people always want to set down on the poor farmer? Why don't you talk of boycotting the moving-picture business and other useless and needless things that people are continually throwing money away on? It is certainly alarming how much money people spend foolishly and never a word said. Let us cut out a lot of this spending money for things we don't need before landing on the tiller of the soil.

C. H. WARD, Florida.

Co-operation is the Charm

DEAR EDITOR: Why do so many of our boys and girls go to the city? Because their fathers take very little interest in them. Most farmers think when they clothe and give the boy or girl a good schooling, their work is done. They send them to the stranger to learn. Why not teach your boy or girl at home also? Who has the most interest in your child—you or a stranger?

Give them a share; let them help you. At the end of the year divide up with them and you will see that they will be contented to stay with you and be a blessing, as they were intended to be.

The talk of the day is co-operation. Why not co-operate at home? All work together with one thought, and there will be no more boys and girls leaving the farm. If a father could see what his boy or girl goes through in the city, he would plan to keep them at home—the girl working for \$3.50 to \$5 a week, the boy for \$1.50 to \$1.75 a day. What have they left after paying for room and board? MARGARET QUINN, Ind.

EW

\$195 Converts Your Ford into a Guaranteed Powerful Staude Mak-a-Tractor

Drive It 24 Hours a Day If You Need It; It Will Always Do the Work

The Staude Mak-a-Tractor is the most economical, most efficient, most remarkable farm implement you can buy. It gives you four-horse working ability at one-horse cost, and it costs nothing when it is not running. It is a proved success all over the country. Tested under all conditions of farm work by owners who say it is the most wonderful implement they have ever used. It has hauled 9,200 pounds of wheat up into a farm elevator on high gear—pulled a 40x60 Minneapolis thresher, the largest size made and weighing 10,000 pounds, in a stubble field on high gear—moved a 25-ton story and a half house on trucks over dirt roads.

It is always ready, day and night. In the hot harvest weather when horses drop dead in the harness, it will do its work continuously for 24 hours a day. Use your Ford headlights for night work. Anyone who can drive a Ford can drive a Staude Mak-a-Tractor.

20 Minutes to Install

Mak-a-Tractor attachment clamps on a Ford with four bolts. No holes to bore. Rear wheels replaced with driving pinions—integral with brake drum. To change back to touring car, merely loosen and roll back Mak-a-Tractor axle and wheels—replace driving pinions with Ford wheels. Mak-a-Tractor frame removable in five minutes. Can be left on car—scarcely noticeable—weighs but 50 lbs.—does not affect appearance or interfere with spring action.

11 Fords in 1

Greatest draw-bar pull for weight ever built. Greater strength in every unit of construction in proportion to work and weight required than any other tractor. Gear reduction (in Mak-a-Tractor itself) increases Ford power eleven-fold—reduces speed proportionately.

No Strain on Engine

Staude roller pinions integral with brake drum replace rear wheels of Ford. Mesh into semi-steel gears on tractor wheels. Power applied near outside rim of tractor wheels—no torsional strain on hub or spokes. Mak-a-Tractor is back of Ford axle—exclusive construction. Driving pinions push the tractor wheels down—no power wasted. Ford does no pulling. Mak-a-Tractor necessarily pushes car ahead of it, since all moving power must come from contact of rear wheels with the ground. With Mak-a-Tractor attachment Ford starts on high and runs on high all the time, proving conclusively that there is no strain. Motor speed is never more than the low speed of 1,000 revolutions per minute in low. Same speed as when touring car is making 20 miles an hour—safe, economical speed for motor.

Patented Force Feed Oiler

Wonderful patented Force Feed Oiling system to motor bearings—same as high-priced cars. Installed in a few minutes. Possibility of burned-out bearings—scored pistons—lubrication difficulties eliminated both from touring car and tractor.

Self-Cleaning Gears (Patent Applied For)

Gears in the Staude Mak-a-Tractor wheels are self-cleaning, an exclusive feature of great value. It saves in wear—prevents breakage of gear teeth. Gravel, stones, dirt of all kinds are automatically removed from the gear teeth. The Staude Mak-a-Tractor runs as quietly and smoothly as a motor car.

Staude Concave Creepers

18 Special Staude Concave Creepers are furnished for each wheel. These may be bolted through the tractor wheel rim when equipped. The concave cutting edges dig into soft soil or sand and give maximum pulling capacity. Special feature. Ordinary flat-edged creepers ride over the soil—waste motor power by making the engine "pull up hill."

Staude Ford Radiator—Extra Large

Driving at slow speeds a motor beats up much faster than at high speeds—a smaller volume of air passes through the radiator. A tractor operates at slow speeds. So we provide a special Staude Ford Radiator—cellular type—six times more efficient than Ford. It should be left on the car permanently—it's the best Ford Radiator ever built. And it is a guarantee of perfect cooling both for tractor and touring car.

Cold Rolled Steel Axle

The Special Staude rear axle is two inches in diameter, made of cold rolled steel. Tractor wheels run on roller bearings. All the pulling is done by the Staude Mak-a-Tractor attachment itself. No extra load is put on the car chassis. The hitch is on the rear axle where it should be, and may be moved from one side to the other without interfering with the steering or causing side draft. The hitch is 33 inches wide, giving a broad range of positions to meet every hauling requirement.

Special Fifth Wheel Job 2½ to 5 Miles per Hour

Special Fifth Wheel attachment for receiving ordinary farm wagon bolster and reach furnished at slight additional cost. Gives perfect tractor construction for hauling heavy loads. Special pinions give speed ranging from 2½ to 5 miles per hour.

Send Coupon NOW Only 20,000 Staude Mak-a-Tractors will be built this year. There will not be near enough to supply all farmers. Ask at once to avoid being disappointed. Only those who order first can be favored. Send the Coupon NOW—QUICK. Read the starting big Book. See what the Staude Mak-a-Tractor is doing for others—what it will do for you. Then see your local dealer and arrange for a demonstration on your own farm. But mail the Coupon NOW.

References: Your own banker or any bank in St. Paul or Minneapolis.

E. G. STAUDE MFG. CO.
2664 W. University Ave., St. Paul, Minn.

Breaking virgin sod, 7 in. deep with 2 bottom, 28 in. gang. (Reproduction from moving picture film.)

Harvesting wheat in July, 1916. (Reproduced from actual photograph.)

Hauling 125-bushel farm wagon, using fifth-wheel attachment.

Utilizes Tremendous Power of Ford Engine

Staude Mak-a-Tractor utilizes the wonderful power of the Ford engine to turn two tractor wheels. The tractor attachment, itself, does all the actual pulling work. There is absolutely no unusual strain on the working parts of the Ford. The Ford rear axle drive shafts merely turn the pinion gears of the Staude Mak-a-Tractor. These gears mesh with the tractor wheel bull gears and turn the wheels under.

We positively guarantee that any Ford in good condition used

with a Staude Mak-a-Tractor will start and run continuously on high gear and will do the work of four horses. Sixteen years of square dealing is behind this guarantee. Ask your banker.

Staude Mak-a-Tractor gear reduction reduces the speed of the Ford eleven times and gives an eleven-times increase in pulling power. This is the reason for the wonderful working ability of the Staude Mak-a-Tractor. It gives greater actual pulling power for the weight than any other farm implement ever built.

The Staude Mak-a-Tractor does not strain any part of the Ford, regardless of working conditions.

First—It uses less than half the Ford power.

Second—Motor speed is never over 1,000 R. P. M., equivalent to twenty miles an hour as a touring car.

Third—It starts on high gear—cannot strain differential.

Fourth—Staude Mak-a-Tractor carries the rear of the Ford and pushes the Ford ahead.

Wonderful Cooling System—Remarkable Oiling System Included

Every service detail has been carefully worked out. The wonderful Staude Ford Radiator, furnished as regular equipment, has six times the cooling efficiency of the Ford Radiator. Leave this on permanently. It guarantees perfect cooling for touring car and tractor both. We wouldn't think of selling you our Tractor attachment without this increased cooling capacity. Without it no tractor attachment can give satisfactory results. The new force feed oiling system, also regular equipment, gives positive feed to all motor bearings through a side gauge on the dash.

With this wonderful cooling system, this remarkable oiling system and a motor speed which never exceeds 1,000 R. P. M. under the hardest work, the Ford motor used with Staude Mak-a-Tractor is more serviceable, more efficient, more durable even than when it is used in the Ford touring car at no increased cost.

Use Any Ford You Can Get

If you have no Ford, get a cheap second-hand one. Clamp Staude Mak-a-Tractor on in twenty minutes, get the lowest farm power in the world and the most efficient tractor you can buy. And save the cost of your Ford and your Staude Mak-a-Tractor in the first month you use it.

This Wonderful Book Free

Get our wonderful farm book, "Reaping a Golden Harvest." It's a real, scientific, carefully edited explanation of how farmers are opening the way to bigger crops, bigger earnings, greater savings and vastly improved land by using Staude Mak-a-Tractor. It is jammed full of information that means real money to you. And we will send it to you FREE. Fill out the Coupon.

**This to This
-in-
20 Minutes**

Reaping a Golden Harvest...

E. G. STAUDE MFG. CO.,

2664 West University Ave., St. Paul, Minn.

Please send me FREE your Big Illustrated Book "Reaping a Golden Harvest," which shows how farmers are making piles of money with Staude Mak-a-Tractor. I would also like to see the Staude Mak-a-Tractor demonstrated on my farm. This does not obligate me in any way.

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City.....

State..... R.F.D.....

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Distributor and dealer applications coming so fast our present selling staff cannot handle them promptly. We need several high grade men at once.



Profit and Pleasure in Game Farming

YOU do not need to be told that there is a great demand for game birds in this country—a demand much larger than the supply. You probably know that game birds of many kinds bring high prices in city markets. But has it ever occurred to you that, by means of game farming you can help supply, and profit from, this demand.

You are well equipped to raise game birds for the market, for your table and for sport. You have the necessary land. You and your family have the experience gained in raising stock and poultry. You may conduct a game farm on either a small or a large scale, as conditions and your own inclinations warrant. The expense involved in time and money is not great in either case, while with reasonable care, success is almost certain to follow.

Proved by Experience

The experience of others verifies this statement; for while game farming has not been carried on as extensively in this country as in Europe, we have many well conducted and profitable farms in all parts of the United States. The owners of these game farms not only receive good prices for eggs and for birds but some of them also rent the shooting privileges on their land to those who are very

willing to pay for the sport.

For your information on this important subject we have prepared a book called "Game Farming for Profit and Pleasure." It gives detailed information regarding the raising of game birds, their habits, foods, etc. You will find it well worth reading.

Write today for a free copy of this book. Use the coupon below.

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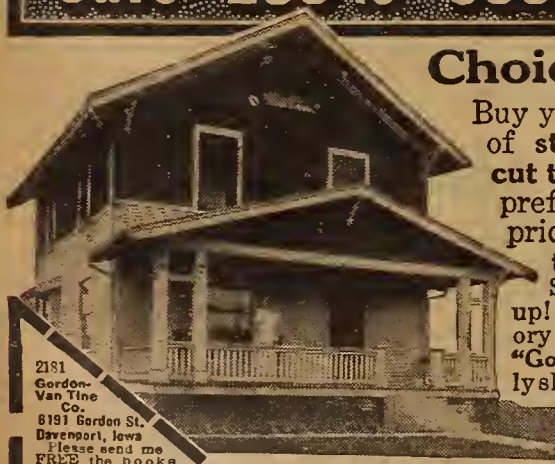
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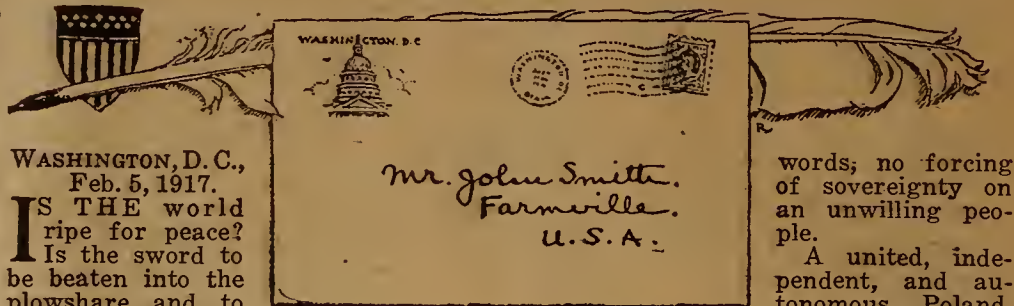
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Wilson's Peace Plan

Its Reception Both at Home and Abroad

By JOHN SNURE



WASHINGTON, D. C.,
Feb. 5, 1917.

IS THE world ripe for peace? Is the sword to be beaten into the plowshare and to remain in that useful form through the coming generations?

Is the treaty of peace which will follow the Great War in Europe to be not merely a scrap of paper, but a lasting and binding covenant among the nations of the earth?

These questions and many others are raised in the minds of the whole world by the address of President Wilson to the Senate on Monday, January 22d.

It has seldom fallen to the lot of a President to deliver an address or a message which has attracted more attention, both at home and abroad. No advance notice had been given of Mr. Wilson's intention, and his address came as a profound surprise to everyone in Congress and in official life, as well as to the members of the diplomatic corps in Washington. In Congress, Mr. Wilson's views have caused a seething ferment of talk and debate. Through the press it has brought forth no end of comment and discussion. Abroad, among both neutrals and belligerents, the address has been analyzed with unprecedented zest and earnestness.

No matter what view one may take of the message or the ideas set forth by the President, there is no denying that the whole world has shown intense interest in the subject with which it deals—future world peace. If it does nothing else, this address is certain to quicken the thought of civilized nations in the tremendous question of what is to be the nature of the peace which will follow this world war, and whether the peace is to be lasting or temporary. Needless to say, views on this subject are of the most widely different kind.

Senator LaFollette of Wisconsin, as Mr. Wilson closed his address, remarked to his fellow Senators: "We have just passed through a very important hour in the life of the world." Senator Tillman of South Carolina imagined he saw the spirit of democracy hovering over the head of the President while he spoke.

On the other hand, expressions of entire condemnation have come from some Senators and other public men.

What is the gist of the President's address which has started such a furore on both sides of the ocean? It gets down to this: President Wilson advocates a league to enforce peace which the United States shall join at the end of this war.

But the United States will not join such a league unless peace is made on terms which will measure up to American ideals of right and justice.

The foundation of peace among nations must be laid afresh and upon a new plan at the end of this war. If there is to be a lasting peace, it will have to be kept by a great world covenant in which the American republics and all the nations join, with a common force to compel obedience to its decisions.

"Mere agreements may not make peace sure," said the President. "It will be absolutely necessary that a force be created as a guarantee of the permanency of the settlement, so much greater than the force of any nation now engaged or any alliance hitherto formed or projected, that no nation, nor probable combination of nations, could face or withstand it." This means nothing more nor less than a world peace department for maintaining order and enforcing the decisions of this league of nations.

THE President thinks that the United States should join this proposed league to keep the world in peace only on the condition that the European war is closed on terms of right and justice, according to American ideals. And these are the terms of peace which he considers proper:

A "peace without victory"—that is, a peace which shall not impose humiliating terms on any nation.

Recognition of equality of rights of all nations, big and little.

Recognition of the fact that Governments derive their just powers from the consent of the governed. In other

words; no forcing of sovereignty on an unwilling people.

A united, independent, and autonomous Poland, as one example of

people being allowed to live under the sovereignty or rule they desire.

No great nation or people to be shut off from outlet to the seas. This is taken to mean Russia is to be allowed outlet to the Mediterranean through the Dardanelles, perhaps by an arrangement whereby waters now closed by Turkey are neutralized.

Freedom of the seas to be maintained.

Limitation of navies and naval armaments and limitation of armies and land armaments.

Already several prominent Senators, both Democrats and Republicans, have assailed the idea. They declare against such a radical departure from the old American policy of "no entangling alliances." They assert that it would mean, not a league for peace, but a league for war, and would scuttle the Monroe Doctrine and drag the United States into the whirlpool of European disputes and jealousies.

OF COURSE, the chances are against Europe's making peace on terms such as the President has outlined. And unless there is such a peace, in accord with American ideals, it may be assumed that the President will never ask Congress to go into a league to enforce peace. But if the actual proposition of ratifying a treaty to join a world league to enforce peace is ever put up to the Senate, what then? Are we going to depart from our long-established policy and join forces with England, France, Russia, Germany, Austria, and Japan to say the world must keep out of war, and any nation that doesn't keep the peace shall be made to behave itself?

If the address has produced confusion and clash of opinion at home, likewise abroad it has aroused conflicting comment. On the whole, the entente powers do not like the talk about "peace without victory." Nor does Great Britain like the idea of freedom of the seas, provided it means, as it seems to, that commercial blockades in war are to become a thing of the past and naval armaments are to be reduced. On the other hand, Russia welcomes talk about an outlet to the sea, and the entente powers generally approve of the giving up of conquered territory such as Belgium, Serbia, and Roumania.

Germany and Austria like the expression "peace without victory" because it conflicts with the entente talk of exacting reparation. They like, too, the doctrine of freedom of the seas. As to some other phases of the address, they are less enthusiastic, though Count Tisza, the Hungarian premier, has endorsed it and declares that he is "completely in agreement with the President's demands."

On the whole, Europe seems to give credit to President Wilson for setting forth a desirable ideal, but one which is doubtful of realization. Only by crushing Germany, say the entente allies, can such a peace as Mr. Wilson talks of, ever be achieved.

"Unless Germany is defeated," says Baron Sydenham of London, "not one of Mr. Wilson's demands can be fulfilled, and his roseate vision will fade into oblivion."

In Germany there is less pronounced criticism of the address than there is in the English press and among English public men. German Socialists approve the White House pronouncement, but the German militaristic elements look with a dubious eye on the proposal for the limitation of armies, just as there is misgiving in England over the proposed cutting down of the navy.

Not the least interesting phase of the situation is that when Congress adjourns, President Wilson may go before the country and make a series of speeches in which he will set forth his views of the new duty of America, as he conceives it, to help uphold the peace of the world. The President has not announced that he will do this, but it has been suggested, and if he follows this course it will be with the idea of organizing public opinion to compel the Senate and House to back up the proposed league to enforce peace.

Lost People

MR. S. D. DAVIS was last heard from in Fort Worth, Texas. He is short, has black hair, blue eyes, and is partly bald. Teeth are filled with gold. Information concerning him is urgently desired. Address Lost People Editor, FARM AND FIRESIDE, Springfield, Ohio.

THOMAS HORTON, Benjamin Horton, and Mary Jane Horton, whose present ages are fifty-five, fifty-two, and forty-nine years respectively, left the Catholic Orphans' Home a few miles from New York City in 1877. Information concerning them will be gladly received by John Horton, Milford, Illinois.

ROBERT ALLEN STRIKER, age five, last seen in St. Petersburg, Florida, in December, 1914, is thought to have been kidnapped. Small scar on upper lip, hair reddish-brown, eyes dark brown. Communicate with Mrs. Wm. C. Richter, 698 Macon Street, Brooklyn, New York.

UNCLE BILL BELL, who lived near Charlotte and Grand Ledge, Michigan, in 1872, is a lost person. Who knows where he is or any of his children? Their names were George, Mary Ann, Tilda, and Josephine. Persons having information should address Lucy Hutton, Elk City, Oklahoma.

I DO NOT know the given name of either my father or mother, nor whether I have any brothers or sisters. I was born in East Broomfield, New York, and when about five years old was sent to the county poorhouse when my father, who was a blacksmith, died. I am now past sixty-four years, and have never heard from any relatives. Who can locate any of them for me? DeWitt C. Strong, Box G., Mondamin, Iowa.

J. N. MATTOX, commonly called Newt Mattox, disappeared from his home near Attica, Indiana, February 17, 1916, and has not been heard of since. About 5 feet 10 inches tall, weight 175 pounds, somewhat stoop-shouldered, dark hair tinged with gray. Little finger of right hand is carried in half-clenched position as result of injury. Occupation has been farming and the implement business. Any information concerning him will be greatly appreciated by his wife, Mr. Newt Mattox, R. F. D. No. 2, Attica, Indiana.

WANTED address of Jim J. Post, who left Wheeler, Arkansas, thirty years ago for Los Alamitos, California, and twelve years ago left there for Tulsa, Oklahoma. He is fifty-nine years old, has blue eyes, height 5 feet 5 inches. Also the address of Jack Post, formerly of Gentry, Arkansas, brother of Jim, or Betty Bruner, their sister, who lived in Tulsa as late as winter of 1914. Address Mrs. Gus McColloch, Mintrose, Colorado.

GEORGE W. BUTLER, who went from his home in Fowlerville, Michigan, last May, has not been heard from since. He is nineteen years old, five feet six inches tall, has large brown eyes, heavy black eyebrows, and wears his hair pompadour. Thumbs on both hands are unusually large. Inform his anxious mother, Mrs. O. W. Butler, Laingsburg, Michigan, R. F. D. 2.

WANTED—The whereabouts of my uncle Alfred Collins, last heard from in Black Diamond near Seattle, Washington, about twenty years ago. Known to have left for Colorado about that time. Information will be gladly received by A. E. Francis, 661 Haight Street, San Francisco.

ALBERT FOREMAN of Coleman, Texas, was last heard of at Oklahoma City, Oklahoma. He was formerly in the army for ten years. Information regarding his whereabouts will be appreciated by his father, J. W. Foreman, Coleman, Texas.

WANTED to know the whereabouts of my father, Jerome Robert Bishop, age about sixty-seven years. Last heard of in New Haven and South Meriden, Connecticut. Address J. W. Bishop, Jean, Texas.

WHO knows the whereabouts of Mary, Lucy, and Joe Riggs, my nieces and nephew. Mary Riggs married Dr. W. H. Ross. When last heard from, about three years ago, they were at Batesville, Arkansas. Only information is that they have moved away. Address Thomas Clemons, in care of H. J. Stillings, Hermiston, Oregon.

DAVID HECKMAN, if living, is about seventy years old, 5 feet 8 inches tall, and slightly pock-marked. He left Paulding County, Ohio, between fifteen and twenty years ago, and moved either to Missouri or Kansas. Information concerning him will be appreciated by his sister, Mrs. Moses Wise, Waukarusa, Indiana.

Book Reviews

DE LAVAL DAIRY HANDBOOK is an attractive booklet of 71 pages containing practical information on feeding and breeding problems contributed by dairymen of national reputation. Among the most valuable chapters are those giving rations for dairy cows, methods of testing cows, and experience in calf-raising. Will be sent free to readers mentioning FARM AND FIRESIDE. Address The De Laval Separator Co., 165 Broadway, New York City.

FARMERS' ELECTRICAL HANDBOOK is an illustrated 160-page booklet containing directions for the installation of telephones, lighting plants, electric-wiring, and fixtures of all kinds. The charging and care of automobile storage batteries is explained, also operation of electric pumps and stoves. Will be sent free to FARM AND FIRESIDE readers. The Western Electric Co., 195 Broadway, New York City.

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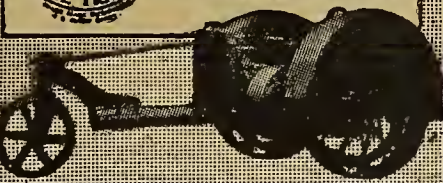
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SPLIT HICKORY

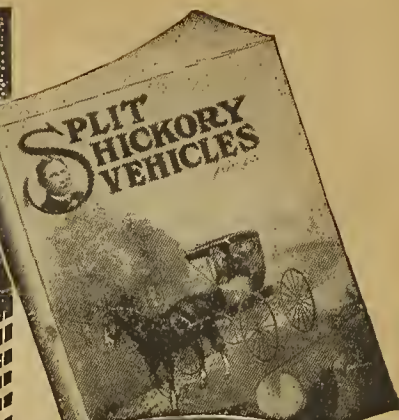
Every rig I show in my big book is a genuine "Split Hickory" throughout—made in my celebrated Split Hickory factory. Famous for style, beauty, easy riding, lightness, strength and long service. Over a quarter of a million of them now rolling over the roads. My new plan of selling cuts down the cost to bed rock. Saves you big money. Think of it! You can now get a Genuine Split Hickory direct from my factory on

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AND when you're buying tires follow Poor Richard's advice and say only the one word, "Firestone." This word is not only the name of a tire foremost in quality, it is the name of a man who is personally responsible for that quality, which means safety, comfort, mileage, for you.

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And because volume of sales (over 33,000,000 dollars last year) and efficient factory methods lower production cost, you get Firestone Tires at only average price.

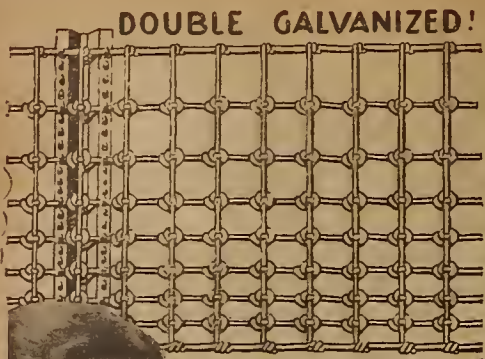
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My remarkable, big, new book shows everything you want—covers every kind of vehicle and harness. Prices smashed. More styles. If interested in my Money-Saving Merchandise and Farm Equipment catalog, ask for it. Quick shipments—lower prices. Write me today. D. T. Bohon, Pres.

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Poultry-Raising

Raising Pullets for Sale

By J. T. Raymond

POULTRY BREEDERS who spend substantial sums on advertising generally have pullets for sale, but their prices are high and the market demand for pullets at a reasonable price is very heavy.

Into the large poultry centers like Boston go every fall large numbers of cull pullets, inferior stock which is unloaded on novices in poultry. Overstocked poultrymen also ship well-bred, likely stuff, and some good pullets are sold through emergency, but the supply from these sources is apt to be scanty and uncertain. The poultryman who starts out to buy good pullets in any numbers finds a job on his hands.

On only a few commercial poultry farms is the production of pullets for sale a definite part of the business. That good profits are possible in this department has been proved by a large poultry farm in Hillsboro County, New Hampshire. This farm gets ready several hundred Rhode Island Red and White Leghorn pullets every year. The prices obtained run from \$1 to \$2 apiece, though some birds of show caliber bring more.

This farm has plenty of range, and it prides itself on the vigor and stamina of the stock. There are several hundred layers, pure-breds only. Originally White Leghorns were the breed kept, but Rhode Island Reds were taken on because of the great public demand for pullets of this variety.

Most of the chicks are hatched out in April. All chicken houses are cleaned out and disinfected three times a week, sour milk is almost the exclusive diet until the chick is through the danger period, and runs through shady corn keep the stock comfortable through the hot summer. The result is that this farm raises a very large percentage of the chicks hatched.

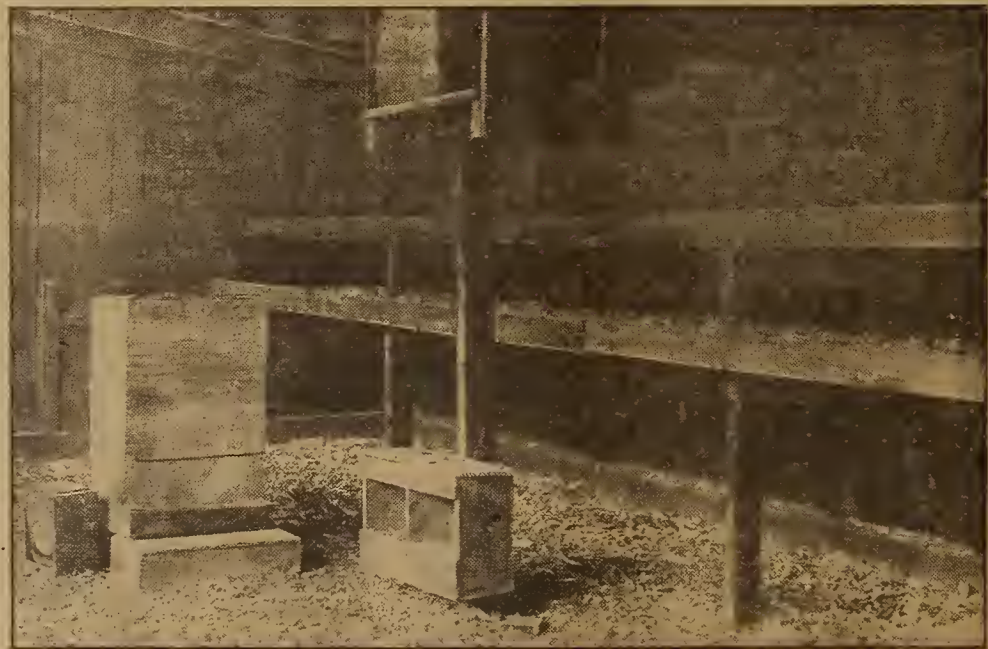
The pullets are sold partly direct and partly through dealers. One high-grade concern in Boston buys a large number of selected pullets each year at \$2 apiece. This farm has won prizes at poultry shows and has an established reputation for good, all-round stock.

Last Call for Breeders

By Mark Sabin

HERE is the last call to encourage you to select the best possible breeding stock to furnish the hatching eggs for this year's crop of chickens. Make sure of exceptional vigor for the first requirement. Weak, sunken eyes, thin, spindle shanks, drooping tails, and weak combs are all signs of weakness and low vitality. On the other hand, strong, well-spread legs, strong nails, bright eyes, and full red comb, together with loud and frequent crowing in the male and plenty of chicken talk in the hen, indicate vigor.

Get a dozen or two of the best layers and most vigorous birds together in one pen, and with a male to mate with them you can steadily raise the quality of your flock.



Rear view of poultry-house interior where young stock are housed, showing drop-ping board, dry-mash hopper (closed), grit box, water fountain and floor litter

Divorce from Setting Hens

By C. Griffith

FOR twenty-seven years I raised chickens by hatching eggs under hens, and during all that trying period I experienced the unending troubles resulting from the instability of the broody hens. My patience became exhausted and I determined to try machine hatching, so bought a first-class incubator of 130-egg capacity, and I read and reread the instructions until I knew them by heart. I then filled the incubator with Brown Leghorn eggs, and the 20th day I had 98 as spry little Leghorns as I ever hatched with a hen. The second hatch I got 118 chicks, and the third hatch, 122 chicks, without one deformed chick among them.

When the chicks were five weeks old I took all the roosters out of the flock and sold them to a dealer for 15 cents apiece. That left me more room for the young pullets. The first hatch came in May, and began laying the middle of January, and the other hatches a little later.

I give this experience so that others now making use of hens for hatching may get rid of the drudgery just as I did. I think no one could have been more afraid of making a failure or needed to make a success more than I did. I hope my experience may induce other busy farmers' wives to raise chickens by making use of an incubator in place of the old-fashioned hen-hatching plan.

Final Incubator Test

By B. F. W. Thorpe

THE matter of choice of incubators is by no means a settled conviction in the minds of many poultrymen. The number of good incubators cannot be numbered on the fingers of one hand or two. Nearly every year something new in incubators bobs up. One type that is now getting its share of attention is round in construction instead of square or rectangular. The claims for the incubator with a round egg chamber is a constant and uniform circulation of heat. Another claim made is for economy of fuel. After all is said, the safe and sane poultry raiser is most interested in proving the qualities of an incubator under his own conditions, and his doctrine is absolutely right.

Speed Up Your Hatching

By F. W. Orr

DO NOT let November catch you next fall with pullets undeveloped. Get the chicks out three or four weeks earlier and have the pullets matured, ready for laying, by the middle of October. It may require an incubator to speed up the hatching date so that early winter eggs from the pullets can be a sure thing. But remember that one dozen eggs in November, December, and January is worth two or three dozen of those laid in the spring, and the cost of feeding the loafing hens is but little greater, whether they are laying or loafing.

Egg Exhibitions

THE exhibition of eggs at poultry shows and poultry short courses is doing much for the improvement of egg quality in many sections of our country. Until poultrymen begin to make a study of eggs by comparing them with the best types of eggs laid by the different breeds and varieties of poultry, there is but little chance of good uniform eggs being marketed that will measure up to the desired standard wanted by consumers.



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combined with
good judgment
counts in business
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nourishment for
sturdy muscles
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Good because light and flexible and sole-worthy. Good because foot-comforting for the good wife at her housework as for the farmer in his field.

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Remember, too, that your shoe dealer can get Neolin soles on new shoes or for new soles. They cost no more.

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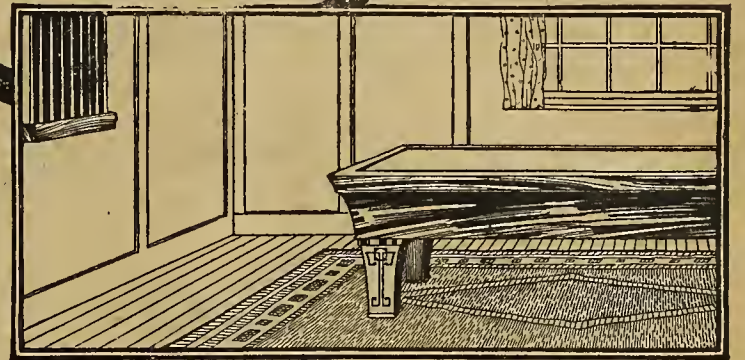


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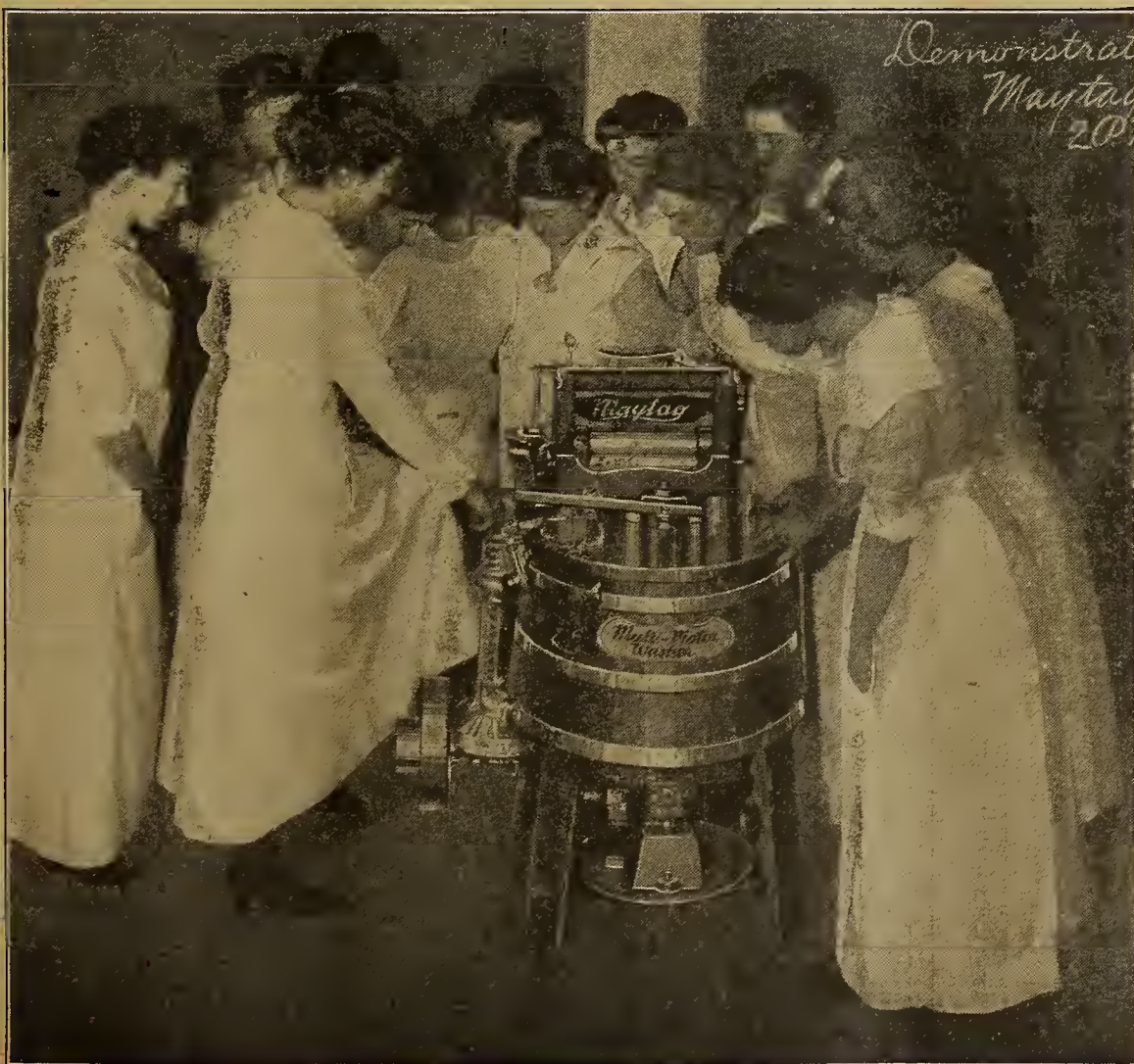
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In classroom practice on household management in the *Home Economics Division of Iowa State College of Agriculture and Mechanic Arts*, the



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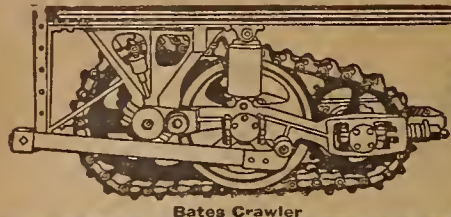
is demonstrated as an advanced utility for household laundering and home power purposes. It is for homes that lack facilities to operate the Maytag Electric Washer. The Maytag Multi-Motor Washer operates on gasoline. Safe, simple, economical and wonderfully thorough in its work.

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Here's the Crawler That Adds More Power

It Works On Any Soil

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with the crawler traction will give you at least 30 per cent more days of service a year than an ordinary tractor. It is able to work when round wheel tractors are forced to be idle because they sink down in mud, etc.

The spring-mounted Crawler gives the "Mule" perfect traction on any soil, wet or dry, without packing the ground as much as a man. As one enthusiastic owner said, "It's a regular 'Mud Hen'." In addition to this, the "mule" will deliver Full Power at the drawbar regardless of soil conditions.

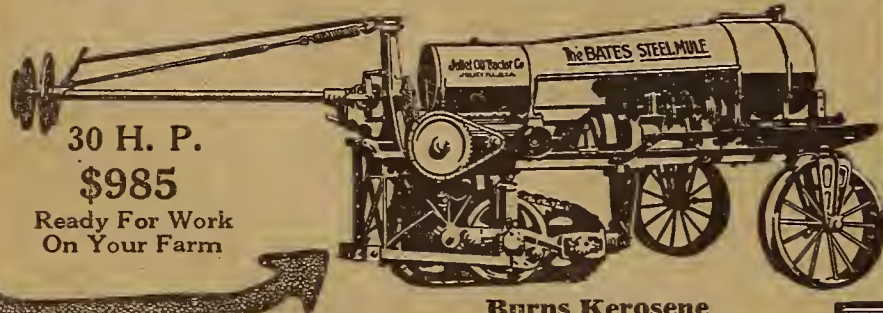
One Man Does It All

Get that! O-N-E man for both tractor and implement. Sit on your implement and drive the "Bates Steel Mule" as you would a horse. Everything is in front of you, right under your eye. You can do all the work as efficiently, quickly and easily as any two men could. And remember that the Bates Steel Mule is the only machine that can claim to be a one man outfit and make good on its claim. Write for full illustrated facts.

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Ready For Work
On Your Farm

Burns Kerosene



One Man Plows 10 Acres a Day.



One Man Discs 35 Acres a Day.



One Man Harvests 40 Acres a Day.

Machinery



Public-Service Patents

By M. R. Cramer

THE experts of the U. S. Department of Agriculture frequently conceive ideas in connection with their work which prove to be patentable. During the last year twenty-nine such inventions were made and dedicated to the public. In accordance with the Department's policy, its workers obtain what is known as a public-service patent, the chief purpose of which is to prevent anyone else from patenting the invention.

This gives the public the free use of the processes or devices which have been developed in connection with the scientific work of the department. Among the patents granted and applied for during the past year are a poultry-picking frame, beet-syrup process, machine to gather crimson clover, process to preserve fruit juices, and a portable telephone.

Slush-Concrete Blocks

AN OKLAHOMA dairyman asks what is meant by a "slush-concrete block silo," and in what way it is different from one made of ordinary concrete blocks.

Slush blocks of concrete are so named from the manner of making them. A long trough is made of two-inch lumber. This trough is usually 16 inches wide and 8 inches deep, inside measurement. To make the blocks, partitions of 16-gauge steel and shaped to the correct curvature are placed in the trough four, five, or six inches apart, according to the thickness of the blocks desired. Then each plate is covered with paper and a slushy mixture of concrete is poured in between them. Ninety-one blocks 4x8x16 inches can be made from a cubic yard of concrete mixture.

While the concrete is still soft the metal partitions are taken out and the paper prevents the blocks from running together.

When the concrete is fully set, the blocks are removed and the form is used over again. Thus the blocks are solid, but they are laid in the ordinary manner with reinforcing wires in the mortar joints. While a silo of this kind is about as expensive as a solid-wall concrete silo, the blocks may be made at odd times and the wall built a little at a time, as convenient.

Profitable Power Saw

By Dora Mon Dore

THE owner of the saw shown below lives in the Catskills. Before he purchased the saw and the gas engine that drives it, he used to hire men to saw or chop his firewood. Day after day, patiently sawing and chopping in the good old-fashioned way, the men managed to pile up a few cords of wood.

Then he began to calculate. Part of the neighboring mountain belonged to him. He looked at the timber on the side of the mountain—more timber than he could cut and draw to the vil-

lage in a lifetime. He then looked at his bank book, and finally decided to make the mountain do something more than provide the household fuel.

Of course, a wood-sawing outfit must pay for itself in order to justify the purchase, and a good one cannot be purchased for a small sum. At the time this particular outfit—a six-horse-power engine and saw combined—was purchased, the outlay was close to \$500. That was seven years ago, and since then the price has been reduced as sawing outfits increased in popularity. Still, even at that time he could have secured a cheaper outfit if he had been willing to risk a less dependable grade of machine.

This particular farmer is primarily a dairyman. During the winter he must retain his hired men and must feed his two teams, though they are busy only during certain parts of the day. Consequently the saw helps to utilize what would otherwise be the waste time of men and teams. In a few hours this saw cuts a pile of wood that would daunt the wood choppers of days past. It ordinarily cuts up from 30 to 40 cords of wood in a day, and the season's profits range from \$200 to \$300.

There are four men at the saw in the picture, and a fifth could have been employed at the right to pick up timber. While the saw "eats" wood, the engine "eats" gasoline, so there is need of hustling while the work lasts. Economy demands rapid work, and the owner of the saw knows this. Each man has a particular duty. The hardest positions are at the ends. At one end the timber is lifted to the table. Then it is simply pushed along to feed the saw. At the opposite end, as the wood is sawed into stove lengths, it must be rapidly thrown out of the way. The man at this particular post has the hardest work.

For miles around, this sawing outfit is in demand even at the \$10 a day that the owner charges. But moving the saw and engine in the winter time is no trifling task, and customers who have at least three days of steady work for the outfit are given preference. The owner of the saw takes with him one hired man, while the man whose wood is to be cut furnishes as many more helpers as he can secure, in order to get as much work done as possible.

Believes in Tractors

By W. C. Cook

I HAVE been a reader of FARM AND FIRESIDE for a long time and have read and heard a lot about farm tractors. Now I would like to tell of my own experience of seven months' driving a tractor. We had two three-wheel tractors weighing about 6,500 pounds apiece, and used them for hauling strings of loaded wagons or, more correctly, tractor trailers having couplings at both ends. It takes some time to get used to backing up, but all you need to do when your trailer starts one way is to cramp the tractor in the opposite way.

Tractors are still in their infancy, but are nevertheless being used by persons who previous to their purchase did not know a carburetor from a spark plug. What these people don't know they blame the tractor for. I think the tractor is the coming thing for farms of 160 acres or more. If you are behind with your work, you can get to the field say at 4 A. M. and stay until 9 P. M. In that time you can do as much with the tractor as you could do in four days with a three-horse team.

How long will it take you to catch up at that rate? Not very long. But don't think the machine will run itself. It needs some attention. One of the principal things to watch is the lubrication so it will not run hot.

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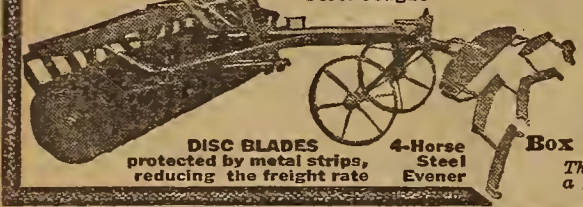
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The owner of this outfit is an Eastern dairyman. Each winter he makes it return from \$200 to \$300

Cistern Cover of Concrete

Carlton F. Fisher

THE picture shows a concrete cistern cover made with no other form except a hole in the ground. I simply measured the shoulder of the cistern, which projected above the ground slightly, and with a compass (made from a stick and two nails) drew a circle on a piece of hard clay ground. The circle was six inches greater in diameter than the shoulder of the cistern opening. I dug down four inches, leaving the wall smooth, and then around the edge of the bottom of the hole I made a little trench two inches wide and one inch deep. I smoothed off the bottom and sides of this hole with a small trowel.



View from below, showing flange

Then I made a mixture of cement concrete, using one part of cement to three parts of clean sand. This done, I poured in the sloppy mixture to a depth of three inches and rounded the top like a dome.

Several short pieces of barbed wire were put in for reinforcement. After ten days I dug out my concrete, turned it over, and took the photo. Of course the dirt form does not give as smooth a finish as a wood form, but the top of the cover is perfectly smooth, and the general effect when on the cistern is entirely satisfactory. This cover will never wear out, and as it fits down over the shoulder of the opening, there is no chance for dirt, insects, or animals to fall in. It required 15 cents' worth of material and 10 cents' worth of time.

Good Wire—Good Posts

H. N. HUMPHREY, a government investigator, gives the following sensible advice about constructing fences: "It is not advisable to construct a permanent fence on posts that will not last as long as the wire. When this is done the fence has to be restretched on a new set of posts, the cost of repairs will be considerably increased, and the full efficiency will not be gotten from the wire."

Your Neighbors' Implements

By P. C. Grose

LITTLE by little, as we go along, our farm methods and systems become improved and refined. Each alteration or change means just another advance toward more efficient farming. And we find that occasionally to review a period of time and recount the improvements that have been effected is a mighty incentive to plunging into the future in search of others.

This last season we learned a new lesson. That is, that it sometimes pays a farmer to canvass his community, or even go outside his community if he fails within his community or immediate neighborhood, and locate those farmers who have old discarded or unused machines similar to the implement he himself uses.

Last summer one day the heavy metal crank shaft on our hay loader snapped in two.

We had just commenced with the first load, and we had an extra large amount of hay down for the day, it being Saturday. At once I jumped into the car and took the parts ten miles away to the city where an oxygen-acetylene plant enabled them to do such welding. This cost \$2.65, besides the trip, the time, the worry, and the loss due to the fact that the hay had to remain out over Sunday.

After being fitted up on Monday and one load taken in, it snapped again at the weld. This time I felt pretty "blue." I again hastened to town, intending to order the repair if it did not mean to lose a lot of mighty valuable time until it arrived. Here, however, I chanced to run across a farmer who lived some four miles from our farm. When I told him my trouble he asked the make of my machine. I told him.

"Why," he exclaimed, "I've got an old one just like that sitting idly in the barn lot that I intend to sell for junk. Take the crank shaft off of it."

I did, and gladly paid him a dollar despite his protests. But think what it would have saved me had I known this before haying time.



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There are Victor dealers everywhere, and they will gladly demonstrate the different styles of the Victor and Victrola—\$10 to \$400—and play any music you wish to hear. Write to us for the handsome illustrated Victor catalogs, and name and address of nearest Victor dealer.

Victor Talking Machine Co., Camden, N. J., U. S. A.

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Work of 8
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Works 10
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The fact that the sales of this tractor last year were one-seventh of the entire tractor output of this country, competing with 100 different manufacturers, should be sufficient evidence of what farmers think of this machine.

Tractors are not generally bought without careful investigation. This large sale means that thousands of average sized farmers have found the Waterloo Boy best adapted for use on their farms.



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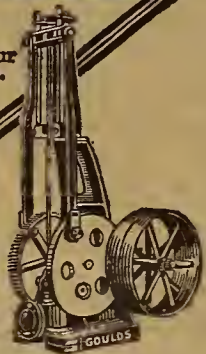
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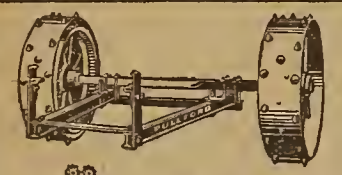


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Good-Health Talks

Suggested by Questions from Our Readers

By DAVID E. SPAHR, M. D.

HHEADACHE is a symptom of multiple origin, and with its variety of complex conditions demands our careful consideration. Headache is a broad term given to attacks of diffuse pains in different parts of the head and not confined to particular nerves. It is estimated to occur in from 10 to 15 per cent of school children, 25 per cent of men, and 50 per cent of women.

People who are subject to headaches should avoid eye-strain, rich food, and worry. Plenty of exercise and fresh air will do much in avoiding headaches. Complete relaxation in a darkened room is helpful in severe cases; a hot foot bath with cold applications at the head relieves many sufferers. Most headache tablets contain dangerous drugs, and should not be taken without a doctor's order.

Hyperthyroidism

Mrs. C. A. V. of New Hampshire writes concerning her sister, who is thirty-five years old, the mother of three children, and who for two years suffered with goiter, causing rapid heart action and extreme nervousness, accompanied by dizzy spells. She wants to know if she has hardening of the arteries, or if her disease would bring on organic heart disease, and if an operation would be better than treatment.

IN CONNECTION with the treatment she is taking, which is proper, I would only advise that she be kept in bed with a water bottle filled with cold water applied constantly to her chest, over her heart. No, it will not cause organic heart trouble. She does not have hardening of the arteries. In a great many of these cases the removal of a portion of the gland is the only possible help. My experience with electric vibrators has been disappointing.

Hordeolum

What can be done for sties? I have had so many painful ones during the past year. Mrs. A. F., California.

IF THE proper treatment of sties is neglected they are prone to recur and recur. Hot applications and thorough evacuation is the proper treatment.

Recurrent Vomiting

My son, six years old, has recurrent attacks of vomiting green bile. They recur every two or three weeks. Mrs. B. W. J., Idaho.

GIVE him one one-tenth-grain tablet of calomel every half-hour, until he has taken ten tablets. Follow this up the next morning, before breakfast, with a dose of oil, and see that the bile is worked off well. Repeat this once every two weeks until the vomiting spells cease. These spells are usually caused by some infection. Do not allow his bowels to become constipated.

Roughness of Skin

Can you tell me something to remedy roughness of the skin? It does not itch, but is just an ailment that I have had for years. I have friends that have the same trouble. B. C., Kentucky.

TAKE a hot bath and anoint yourself with liquid alcohol every day. Every second day take a bath, using hot water and soap.

Plantar Neuralgia

Mr. C. E. T. of Rhode Island writes that he suffers with pain in his feet and soreness of the ball of the foot. He thinks it was caused by wearing too light-soled shoes.

BATHE them with chloroform liniment, to relieve the pain, and take a five-grain tablet of strontium bromide every three hours.

Harelip

What causes some babies to have harelips? R. M. B., Michigan.

IT IS a congenital deformity, due to lack of proper nourishment and sufficient blood supply for proper development.

Night Terrors

MRS. O. F. J., Oregon, is worried about her little daughter. About an hour and a half after she puts the little girl, four and one-half years old,



to bed she awakens greatly frightened. She clutches at her mother and trembles from head to foot. At times she grits her teeth. As soon as the spell is over she is perfectly calm and immediately goes to sleep again.

Night terrors are quite common among certain nervous children, and are due to gastro-intestinal disturbances, late suppers, or circulatory weaknesses, and

possibly anemic, thin-blooded children are more susceptible. Avoid ill-ventilated rooms, late meals, exciting games, and story-telling before bedtime. If these things are avoided, and with proper diet and laxatives, she will be relieved.

Sweating Hands

Is there a permanent cure for excessive sweating of the hands and armpits? Mrs. J. R., Ohio.

TAKE agaricin, one-twelfth grain—One tablet every three hours, increasing the dose slowly until effective. Bathe the parts with a solution of quinine, twelve grains, bay rum, three ounces.

Suffers from Tetter

Is there a permanent cure for tetter (eczema) of the hands? I am bothered a great deal. Have to wear gloves. T. F. S. Maryland.

TETTER is a disease due to local irritation. Apply benzoated colloidion and wear gloves.

Migraine

I am forty-two years old, and nearly all my life I have had attacks of nervous headache. Have always been a farmer, and have spent my life in this damp, wet State of Oregon. Went to the hot mineral springs and did not have an attack all the time I was there. I have poor circulation, cold feet, am bilious and also very nervous while the attacks last. C. A. P., Oregon.

MIGRAINE is occasionally hereditary in neurotic families, with a history of gout, rheumatism, or neuralgic disorders. Autotoxemia and complex intestinal poisons, errors in refraction, overwork, shock, injury, and exhausting diseases are causative factors.

Clean out and clean up. Wash out the stomach and the bowels and eliminate all the poisons possible. Go to the mineral springs and stay until you have broken the habit.

Night Sweats

What is the cause of night sweats, and what shall I do for them? T. J., Georgia.

LOWERED vitality from any cause, as tuberculosis or debilitating diseases. Take one-twelfth grain of agaricin on going to bed. Then have someone to arouse you at 3 A. M. and give you some light nourishment like warm milk or broth.

Stomach Trouble

I am forty-two years of age and have always been healthy. For the last few months I have been vomiting a good bit; more often at night, when I would suffer great distress as my stomach gripes so, and sometimes cramps. Have not slept well for a long time, as the distress is so much worse at night. My stomach is very tender. We lost a cow with tuberculosis recently, and I think now she has had it for a long time. Could the milk have had anything to do with my trouble? Is bovine tuberculosis transmissible to man? Mrs. W. M., Ohio.

YOU do not state just where the pain and soreness is located. If in the lower right side it might be appendicitis or, higher up, gall stones; or, if general, it might be tubercular peritonitis. As to your drinking milk from a tuberculous cow, authorities claim that bovine tuberculosis has been known to have been transmitted to man. But the whole subject is still being thoroughly investigated. We all realize the danger of drinking milk from tuberculous cattle, especially those predisposed to consumption. You need a thorough physical and microscopical examination. Consult a doctor whom you know has the training and also the equipment for making such tests.



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Ask your dealer for a pair of "Ball-Band" Light Weight Rubbers. They are of the highest quality and come in sizes for men, women and children.

Write us if you have any difficulty in finding out where "Ball-Band" is sold. Write anyway for our free booklet, "More Days Wear." It illustrates many different kinds of "Ball-Band" Footwear and tells the sort of work each kind is for.

Mishawaka Woolen Mfg. Co., 305 Water Street, Mishawaka, Indiana
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SUPERIOR

4 Inch Grain Drills



ARE made for the farmer who wants to sow his grain in rows closer together. The Superior 4 Inch Drill distributes the seed more evenly, with more rows per acre and less seed in the row, giving each plant more root room, fertility, moisture and a better chance for sturdier, healthier growth.

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Superior 4 Inch Grain Drills are made in two sizes, plain and fertilizer styles. Operate perfectly under the most exacting conditions. The heavy angle steel frame will stand up to all strains encountered in field work. Superior Disc Bearings are guaranteed against wear. Positive force feed for both grain and fertilizer.

Ask your Dealer for further information, which he will be glad to furnish you, or write us for descriptive pamphlet.

The American Seeding-Machine Company, Inc.
 Springfield, Ohio

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You can feed Blue Bag Brand Medicated Salt with perfect safety and with absolute certainty of seeing an improvement in your stock. Let them dose themselves with this reliable remedy. They will not take more than they require. Remember, healthy-appearing stock often are worm-infested. Protect your animals against worms by feeding Blue Bag Brand Medicated Salt.

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Prices of Blue Bag Brand Medicated Salt.

No. 8B800 25-pound pail, net wt. Shpg. wt., 27 lbs. Price \$1.45

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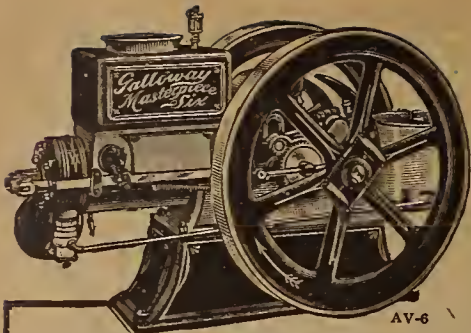
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The American Pad & Textile Co.
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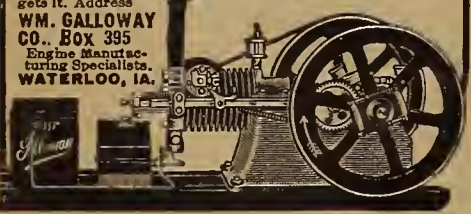
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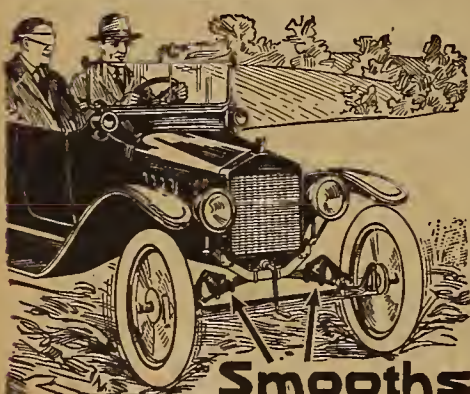
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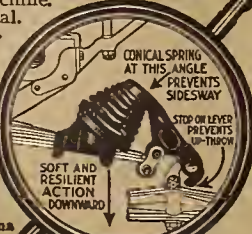
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Crops and Soils

Corn Belt Pushed Northward

By B. F. W. Thorpe

SECURING a gain of a week or ten days in the ripening of corn means a great gain to farmers located near the northern limit of the corn-growing districts of this country. A new variety of corn which has been bred for early maturity by the Wisconsin Experiment Station is thought to be about ten days earlier in maturing than any other strain of corn that has been produced by this State.

This new strain of corn is a Dent variety having 12 to 16 rows to the ear, of a deep yellow color, and with much harder kernels than most Dent corn. The proportion of corn to cob averages about 85 per cent. In the vicinity of Spooner, Wisconsin, during the past season, several hundred acres of this new corn variety known as Wisconsin No. 25 were grown. The corn was fit for seed on September 10th, and ripe ears could have been selected September 1st. At the Spooner Experiment Substation this variety yielded more than 75 bushels of shelled corn to the acre.

Underfed Onion Soil

By J. W. Henceroth

LAST year onions, like most other farm crops, were below both the ten-year average and the previous year's crop in yield per acre and total acreage.

The Department of Agriculture reports a yield of but 261 bushels to the acre for the twelve main onion States as compared to 278 bushels per acre in 1915. The total acreage for the same territory in over 3,000 acres was below that of 1915. But the farm price per bushel on December 1, 1916, was \$1.54 against 95 cents for December 1, 1915, with prospects of going higher.

While the average yield per acre as reported is but 261 bushels, hundreds of growers raise from 600 to 1,000 bushels per acre. One of the most successful onion growers explains his big yields as follows:

"A smooth, well-drained, easily worked seed bed, strong seed well planted, plenty of available plant food at the start and enough to carry the crop through to a quick, certain, and complete maturity—this, together with frequent cultivation and weeding, insures large and profitable onion crops. "A good onion soil," he adds, "must be very fertile and in good mechanical condition, so that the crop can be easily worked, well drained, and kept free from weeds."

Another successful grower believes fall plowing is better than spring plowing, as it permits early planting, which is essential to largest yields. He also says that onions do best on a sweet soil. If the land is sour use ground limestone at the rate of two tons to the acre when fitting the seed bed. "In preparing the seed bed," he says, "don't count the number of times you go over the field. Keep on until the seed bed is as smooth as a board and as fine as ashes. Make the final preparation of the seed bed just ahead of the drill. This insures more moisture and quicker germination."



This substantial warehouse is proving to be a community center for developing the members' ideas along many lines

One onion grower who has been averaging slightly over 700 bushels per acre for a number of years says: "The reason most men get such low yields is because they don't manure and feed the crop properly. Onion land can't be too rich in plant food if properly balanced." He uses from 800 to 1,000 pounds of fertilizer on every acre, containing about 3 to 4 per cent ammonia, 10 per cent phosphoric acid, and all the potash he can get at present, which has not been over 2 or 3 per cent. Most of his soil is a sandy loam. On his muck land he uses a fertilizer with less ammonia in it, but likes 12 per cent phosphoric acid and more than 3 per cent potash when he can get it.

Many growers use more than 1,000 pounds, and some over 2,000 pounds to the acre, with good results. As I parted with this grower he said: "There is one thing to remember. No matter how well you water, curry, shelter, harness, and drive your work teams, they can't do good work unless they are fed liberally, regularly, and generously. The same thing is true for onions. If you do everything else right but neglect to feed the crop with proper manure or fertilizer, you will be no more successful as an onion grower than you would be as a teamster working an underfed team."

Wheat Seed Spreads Mustard

MUSTARD getting into your fields? There are complaints of it from all over the Eastern country. You can keep it out in just one way that has proved practical. Pull it out. The children can do it, and it will cost surprisingly little if you have to hire them.

Wheat seed is the greatest disseminator of mustard. Have the mustard pulled by hand as soon as its yellow composite blossom shows in the green of the field. Then don't use seed unless you are sure it is from a mustardless field. You can keep your farm reasonably clear by this method even if the neighbors are careless; if they will unite with you, it will be still surer.

Car-Lot Merchandising

By G. M. Weaver

IT IS useless to deny that farmers are gradually learning to pull together in a business way, for there are examples all over our broad land where little community groups are now quietly buying and selling together and thus building a substantial basis on which to erect future co-operative merchandising structures which will ultimately have far-reaching effect.

One of these modest beginnings in buying and selling is carried on by The Gleaner and Farmers' Produce Company, Grand Traverse County, Michigan. The members of this organization are producers of potatoes, beans, rye, and buckwheat. The aim of the association is to sell the produce of the members co-operatively in car lots and to buy of farmers who are not members when there is opportunity for a reasonable profit.

During their first season, 24 carloads of potatoes were sold, and several cars of other farm products. The organization bought five cars of flour and feed, one car of farm tools, various shipments of hardware, groceries, fencing, salt, and fertilizer. Its business for the year totaled over \$20,000.

At present the members are making a saving of over \$1 a barrel on flour bought in wholesale lots. The rye crop of the members is already contracted for seed purposes, and the buckwheat, beans, and potato crop will also be largely sold for seed purposes. At present this organization is contracting to buy all kinds of grain, including corn and milling products, also cottonseed and linseed meal for stock-feeding.



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Beans as a Money Crop

By Louis Biemler

THE account of bean culture giving the experience of Lyman Crane, Lawrence County, New York, in FARM AND FIRESIDE, leads me to relate some of my experience with this money crop in Michigan, one of the leading bean-growing States. I will try to show both the favorable and unfavorable sides of this crop.

The different methods of planting beans when growing them on a considerable scale I find to be a matter of importance. We naturally look for machinery with which to do the planting, and for this purpose some growers use their grain drills. By closing some of the feed gates, the beans are drilled in rows far enough apart to allow cultivation. Most bean growers consider 28 inches to be the proper distance apart for the rows for best results. Other growers use corn planters and plant the same as corn. Still others use the two-row bean planters. This machine can be set to drop a certain number of seeds to a hill as desired. Or you can use hand corn planters, which are still used to some extent even where beans are grown for sale commercially.

Planted in Hills 28 Inches Apart

I will give briefly the results of my bean-growing by different methods of planting. When planted with the grain drill 28 inches apart, I use one bushel of seed per acre. From this planting I got a total yield of 102 bushels from 10 acres. At the same time I planted four acres on the same kind of soil with the old-fashioned hand corn planter. The land was first prepared and marked with a home-made marker. The beans were planted 28 inches apart both ways, so as to allow of cultivation in two directions. About four beans were planted to the hill, and the amount of seed used was less than half a bushel an acre. From the four acres I secured 96 bushels of beans.

Both the ten-acre plot and the four-acre plot were cultivated twice, but the beans planted with the grain drill could be cultivated only in one direction, and as neither of the plots were hand-hoed the drill plot suffered from a growth of weeds. There were also hard ridges of soil along the rows which were never broken up. This was not the case in the four-acre plot, where cultivation was given in two directions.

The harvesting of both crops was easily done with a bean puller drawn by a team, which cut the plants off two inches under the soil. The hay rake did a good job of gathering the beans into piles. From the piles after curing they were hauled direct to the sheller.

The old saying was: "Plant beans on the poorest land." To follow this advice is a serious mistake, as beans require a reasonable amount of plant food if a profitable crop is to be expected. My beans were grown on sandy land that was badly run down. But the treatment of this land will show the influence of different ways of handling it.

Good Crops Bring \$100 an Acre

The ten-acre plot was badly run out and was covered with weeds before plowing. The four-acre plot was the same type of soil, but was given a good coat of manure. Still another plot of the same type of soil was plowed in the fall and sown to rye. It was top-dressed in the winter with manure, and the rye was turned under when 18 inches high in the spring.

I then applied from a near-by marl bed two tons of marl per acre, and 1,000 pounds of rock phosphate. The land was then well fitted and the beans planted with the hand planter, the same as with plot number two. The result was 30 bushels of beans to the acre, which sold that season at \$2.75 a bushel. The rate of yield for plot number one was 10½ bushels an acre; for plot number two, 24 bushels an acre; and for plot number three, 30 bushels an acre. The variety of beans grown was Red Kidney.

I find that the soil best suited for bean-growing is a gravelly loam on fairly high land. Beans must not have "wet feet" and cannot stand any frost.

In 1916 the bean crop suffered much from blight. To overcome this trouble I find that the only practical control is planting clean seed and rotating crops so that the beans will not be planted on the same soil two years in succession.

Under favorable circumstances some of the most successful growers average \$100 an acre from their bean crop, and for such a generous return the grower can well afford to keep his land in fertile productive condition by means of stable manure, commercial fertilizer, and lime.

The present bean market is good and promises to continue so at least for several years to come.

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Sixes have come into renewed popularity since the Super-Six won the top place. But the Super-Six invention—controlled by our patents—added 80 percent to the six-type efficiency. And that 80 per cent is what gave it supremacy, when the V-types threatened to displace the Six.

Late in 1915, remember, the Six was a waning type. Even the Light Six, which Hudson gave first rank, had revealed some vital engineering limitations.

It had not solved the problem of motor vibration. It had not minimized friction and wear. Its endurance had proved disappointing.

Sixes at that time held hardly a single record. They were mostly held by Fours.

And leading engineers, including the Hudson, were seeking a remedy in Eights and Twelves. At that time the Six, for high-grade cars, seemed verging on displacement.

What Saved the Day

It was the Super-Six invention, remember, which then saved the day for the Six.

Hudson engineers discovered the shortcoming. By a basic invention they corrected the fault. They ended nearly all the vibration. They doubled the motor's endurance. Thus they created a motor which has since won all the worth-while records.

But that doesn't mean that the old-type Six is any better than it was.

'Twas the Super-Six That Won

The Super-Six, in a hundred tests, has out-performed all other motor types. It has not merely broken records. It has made new records which, a year ago, no man considered possible.

It broke the 24-hour endurance record by 52 per cent. It broke the transcontinental record twice in one round trip. A Super-Six tour-

ing car went from San Francisco to New York and back in 10 days and 21 hours.

It beat twenty famous rivals up Pike's Peak. It broke all stock-car speed records, and all for quick acceleration.

Then, after 7,000 record-breaking miles, it showed itself in new condition. Not a part or bearing showed evidence of wear.

No other motor ever built has shown anywhere near such endurance.

All By Saving Waste

The Super-Six develops no more power than other like-size motors. It simply delivers more. It almost eliminates motor friction and wear by ending nearly all the vibration.

That vibration, which wasted power, was the great fault of the Six. It is that which led to the Eight and Twelve as a possible solution. Any motor in which that fault remains can't compare with the Super-Six.

A New Gasoline Saver

The Hudson Super-Six, in endurance and performance, stands foremost in the world. The new style bodies which we have created make the car look its supremacy. A new exclusive feature—a gasoline saver—gives it this year another advantage.

It now outsells any other front-rank car. It has 25,000 enthusiastic owners, who know that no rival can match them.

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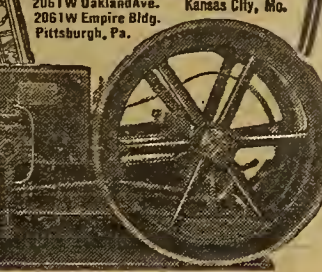
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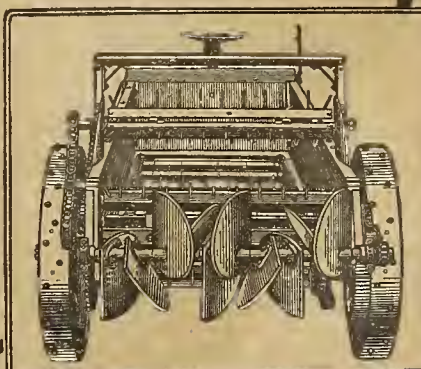
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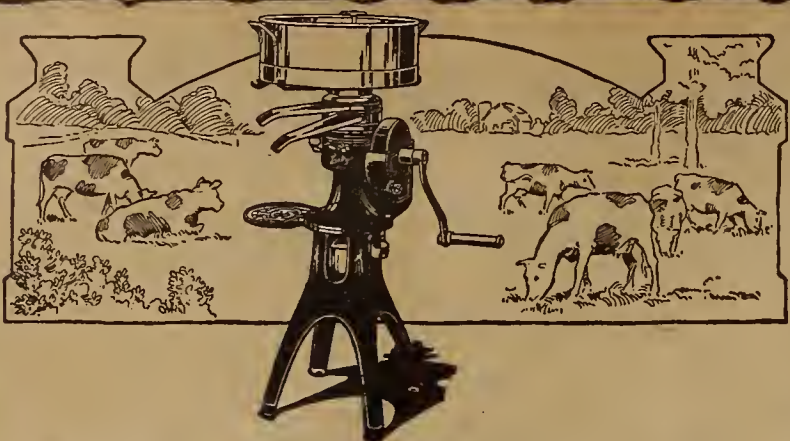
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Dairying

Plan the Silo Now

By Carlton Fisher

MORE silos are built in the latter part of August and the first part of September than at any other time of the year. The desire to see how the corn crop will turn out is largely responsible for the very short time that elapses between the time silos are built and the time they are filled.

But a serious risk is involved in building too late in the season. Silos built of concrete or tile should always stand empty at least two weeks before filling the first time. Tile silos are guaranteed only when this time elapses in order to allow the mortar joints to thoroughly harden. Besides silo masons are so busy in the fall that many farmers are obliged to wait their turn, and by the time the silo is finally filled, the corn has lost its succulent properties.

"The best time for erecting such a silo," says one expert, "is just after corn-planting, though it is a good plan to get the material on the ground in the late winter or early spring while sledging is good and when the farmer can haul the material on hard roads and at a time when he has most leisure."

Monolithic concrete silos may be built at any season of the year, but the best time is spring or summer, so they will have ample time to harden.

Metal silos may be built at any time of year. Stave silos are best put up in the fall, as the hot weather of summer causes the wood to shrink when the silo is empty. But in all cases decide on the size of silo and make the concrete foundation for it early in the season, so there will be no delay on that account.

Judging Calf Feeds

O. F. HUNZIKER, an Indiana dairy expert, believes that an effective way to judge the ration for a dairy calf is to keep an accurate record of the gains made during the first six months.

"In order for a ration," he says, "to be an unqualified success for dairy calves, it should produce a gain of at least one pound a day as an average for the first six months of the life of the calf. An average daily gain of 1½ pounds is not uncommon, although slightly above that which the average dairyman may expect."

Persons not having suitable scales may also note the progress of their dairy calves by measurements of height. "The rate of growth in height of dairy calves," says Mr. Hunziker, "is rather uniform during the first six months. The average monthly growth for an average-sized calf should be from 1½ to 2 inches, although certain individuals will very much exceed these figures."

Machines Save Labor

A SAVING in labor is the chief benefit derived from the use of milking machines according to government experts in farm management. After making investigations of milking machines used on practical farms in New York, Michigan, Ohio, and Illinois, 156 farms altogether, the experts have come to the following conclusions:

The time required to milk a cow is about seven minutes by hand milking and about four and one-half minutes by machine milking.

Less labor was needed where machines were used. For instance, two men with milking machines cared for and milked herds that required three men when milked by hand.

Several hours' more time was available for field work when milking machines were used.

Most of the farmers visited believed that milking machines had no effect one way or the other on the general welfare of the herd.

The greatest speed in using milking machines was made when one man looked after two units, each milking two cows. Thus each man by the use of two machines milked four cows at a time.

Milking machines were most profitable on herds of 16 cows or more. One of the most interesting items was the low cost of repairs for milking machines. The average of the 156 herds was a repair cost of 22 cents per cow per year.

The chief requirements for the successful use of milking machines are careful use by competent men and hand stripping after the machines.

Cold Rains Reduce Milk

MOST dairymen have observed a fluctuation in the amount of the herd's milk that can be traced directly to the weather. A few days of bitterly cold weather usually reduce the milk flow, but if extra feed is given the amount of milk soon reaches normal again. In Arizona, where cold waves are infrequent, the effect of the weather on milk production has been plainly shown and the experiment station there has made records of it.

A temperature fall of 17 degrees in two days caused a 10 to 20 pound shrinkage in the milk flow of dairy cows on pasture. But the most serious drop in milk production was found to be due to cold winter rains. In some cases the butterfat production fell off as much as 46 per cent.

Even the most highly bred dairy cows, however, will produce milk profitably in cold weather if well fed and housed. The development of finely bred herds in northern Wisconsin, Minnesota, and the Dakotas indicates this. And the prejudice against good dairy cows on the ground that they are not as hardy as range stock is being overcome by the fact that they are nevertheless much better milkers and consequently better money makers.

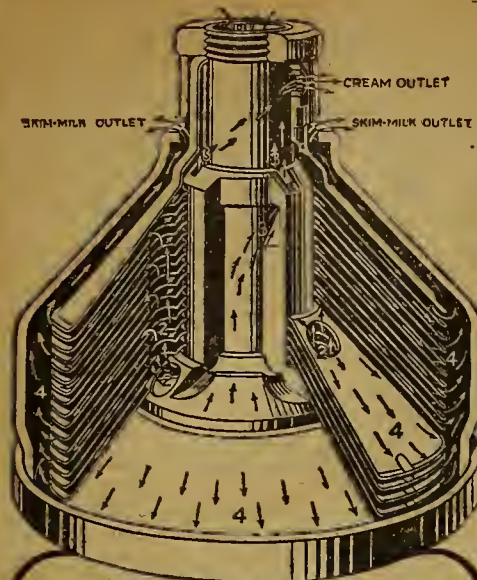
Breeding Adds to Production

IN 1907 the Iowa Experiment Station secured a number of native scrub cows from an isolated region in Arkansas and began breeding them to pure-bred bulls of the standard dairy breeds. By feeding the cows good dairy rations the station experts were able in some cases to increase the milk flow of the original scrub cows 59 per cent. But the most striking results came from the heifers of these cows sired by pure-bred bulls. The first-generation heifers sired by a Holstein bull gave on an average 11 per cent more milk than did their dams, and one heifer sired by a Guernsey bull surpassed its mother in milk flow by 131 per cent. Improvement in conformation was also very noticeable, and many of the first-generation heifers showed the characteristic colors of the sire's breed.

While the value of pure-bred sires is universally recognized, this is one of the most striking experiments showing how much improvement can be secured. The second generation showed still further the effects of good breeding, but the improvement was not as great as in the first cross.



A South Dakota farmer borrowed money to start this dairy herd, and in sixteen years owned not only the animals shown here but valuable young stock as well



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These are big advantages that you can secure only in the New De Laval.

But aside from the big advantages of greater capacity and closer skimming, there are many other important improvements in the New De Laval.

All discs are now interchangeable and are unnumbered. There are fewer discs. On account of greater simplicity of bowl construction, the New De Laval is easier to wash and, capacity considered, is still easier to run than before. High grade construction and design, together with perfect automatic lubrication, are a guarantee that the splendid De Laval record for durability will be maintained in the new style machine.

If you are trying to get along without a cream separator or with a half-worn-out or unreliable machine, why not get a NEW De Laval NOW and stop your cream waste? You don't need to count the cost, because the De Laval will soon pay for itself.

There is a De Laval agent near you who will be glad to explain all the improvements and advantages of the New De Laval, and will set and start a machine for you on your farm and let you try it for yourself.

Why not see the nearest De Laval agent at once? If you do not know him, write to the nearest office for any desired information.

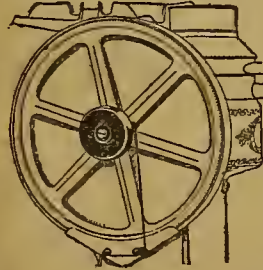
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50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER



Every New De Laval is now equipped with a Bell Speed-Indicator, the "Warning Signal" which insures proper speed and uniform cream.

A Test of a Test

THE sediment test so largely used by dairy officials in checking up the purity of milk supplies has itself been tested by H. C. Campbell, a government investigator. Three well-known sediment tests were used in the experiments conducted to show whether the amount of sediment in milk had any definite relation to the presence of bacteria in milk.

Mr. Campbell's tests show that what is very bad milk-judging from the sediment test may actually be of fair quality. Likewise, milk with scarcely a trace of sediment may be of poor quality from a food standpoint. The samples were taken at a railroad milk platform from cans of various farmers. The experiment compels the conclusion, according to the government report, that "the various sediment tests, while applicable in roughly estimating the quantity of sediment in unstrained milk, cannot be used as the sole means of determining the hygienic conditions under which the milk was produced."

These results do not in any way conflict with the well-established fact that contamination is carried into milk by dirt and dust. Rather they show that straining milk previous to delivery enables it to pass successfully the sediment test and still be of inferior quality. The accurate grading of milk on a commercial scale is thus still in the experimental stage and, as pointed out many times in FARM AND FIRESIDE, the chief factor in the purity of dairy products is the care taken to milk cows in perfectly clean surroundings.

Fewer Cows—More Money

ANEBRASKA farmer, according to a government report, who was milking seventeen cows entered a cow-testing



The sire is half the herd; milk production depends largely on heredity

association. The results of the test showed that seven of his cows were unprofitable, so he sold them. The ten remaining cows are now bringing him a greater profit than he formerly received from the seventeen.

THE purpose of a cow-testing association is to weed out the unprofitable cows. Bull associations, many of which have lately been formed through government encouragement, are for the purpose of raising high-grade young stock with which to replenish the herds.

Common-Sense Feeding Rule

By Lewis Long

IN AN address during Farmers' Week at the University of Missouri, C. H. Eckles of that State pointed out the solution to the high cost of feed as nearly as a solution may be found. With feed prices increased between 30 and 40 per cent and the value of dairy products increased only 10 to 15 per cent, the remedy is to cull out the poor producers and give closer study to feeding those that are left.

Good and economical dairy rations are based on corn silage and some legume hay. Clover, alfalfa, and cowpea hay are all good. Plenty of such feed simplifies the problem. The grain ration suggested to go with the silage and hay is: four parts corn, one part bran, and one part cottonseed or linseed meal.

At present prices, cottonseed meal, distillers' grains, brewers' grains, and linseed meal are the cheapest forms of protein feed. Bran and beet pulp are among the best feeds for lightening a dairy ration so it will not form a sticky mass in the stomach. It is not economical to feed all cows the same amount of grain. This should be determined by production. A heavy grain ration given to a light milking cow will fatten her and will not increase her flow of milk beyond her ordinary limit, which depends chiefly on heredity.

A good rule for practical feeding is to give a cow as much roughage, silage, and legume hay as she will eat clean, and feed in addition one pound of grain to each three pounds of milk for small cows and one pound of grain for each four pounds of milk from large cows.

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Your dealer has it in 25c. 50c. and \$1.00 bottles. There is six times the quantity of the 25c. size in the dollar bottle. Full directions for its use with every package.

Sloans Liniment

KILLS PAIN

PENETRATES WITHOUT RUBBING



Live Stock

Raises Horses to Sell

By W. S. Blake

THE danger of overproduction of horses is remote. It costs more to produce them than any other class of live stock. For that reason many farmers sit back and proclaim that it doesn't pay to raise horses; that there never was a time when the horse market was so dull as now; that the motor truck and tractor have killed the horse business and the horse is a thing of the past.

Some people actually believe this, even though the truth of the matter is the opposite. Those who have allowed such thoughts to direct their operations for the past five to ten years will soon see the error of their ways. It takes time to make much headway in the horse business.

Five years are needed to grow a horse. At best, one should not expect more than two colts from three mares as an average per year. Moreover, not more than 16 per cent of our farms are raising colts.

The man who is breeding every mare old enough to the best stallion available and is taking proper care of the offspring is the man who is sure to be rewarded. There are plenty of men who have bought and paid for farms within the past ten years by their pure-bred draft mares. In the same community there are farmers who are no better off financially than they were a decade ago, because they failed to foresee the profits from using the right kind of horses in their farm work. The men who have made money and who are going to reap the fruits of their efforts in the future are those who early saw the undeniable need for heavy draft horses for farm work; who bred that kind, and who will continue to do so without a halt.

No Danger of Overproduction

Why is there a general tendency among farmers to buy their horses rather than to raise them? Farmers say: "I don't want to be bothered with a colt. When I get ready to plant corn or cut wheat I want horses ready to work; I don't want to have to pay \$25 for a little scrub colt and then have all the bother to raise it, besides."

Men with such ideas have to buy a horse or two nearly every spring, at a cost of \$150 to \$250 a head. Instead of having a horse or two to buy, better have some to sell. There is no unusual training necessary. Any farmer can raise good horses if he will only use common sense. He can even succeed with pure-bred drafters if he will select good parent stock, take reasonably good care of them, and develop the offspring rightly. Therein lies the secret of success.

A careful consideration of the situation cannot fail to convince us that there is no danger of an overproduction of heavy draft horses for our farm and city uses. Almost a million horses and mules have been exported from this country in the last twenty-seven months for use in war. These figures show almost one horse or mule taken for every

twenty-five left. As surely as this war continues another two years, good farm horses will be at a premium; and even after the war is over, exports will not cease, for thousands of horses will be needed to start European agriculture anew.

It follows, as a necessary consequence, that the demand for pure-bred draft horses for breeding purposes will continue to be good. Importations have been, to all practical purposes, cut off. We are producing only 12,000 or 13,000 pure-bred draft horses eligible to registry.

This means, in substance, that we are producing only 5,000 or 6,000 stallions fit for service per year, when we need at least 7,000 or 8,000. An excess of demand over supply always makes good prices, and the present is no exception.

The farmer who uses heavy draft mares does better farm work and raises bigger crops than he who relies on small horses. Furthermore, he has horses to sell each spring at a profit. If you don't believe it, go ask any country banker for the name of the most successful farmers in his neighborhood. You will find them to be live-stock farmers, and men who keep and use heavy draft mares, either grade or pure-bred, in their farm work.

A Self-Supporting Bull

By B. H. McDonald

THE four-year-old bull pictured has been used jointly for work and breeding purposes for two years. When two years old the bull was harnessed with inverted collar and chain traces to an empty stone drag, his owner leading him at first with a rope attached to the bull's nose ring. Soon the bull was



The training of this bull began when he was a two-year-old

hauling loads of stone, gravel, building blocks, milk to the factory, etc., and also plowing without difficulty. When the hauling is too heavy for the bull to accomplish alone, a horse is hitched with him and the pair work peacefully together.

At such times as there is no farm or hauling work for the bull—which are not frequent—he is hooked to the cart and can make a fairly quick trip to town for light-weight supplies. It has been proved that this regular exercise and work required of the bull has not only made him more valuable as a breeder, but also makes his handling safe and easy, and the work accomplished is considerably more than to make him self-supporting.

IF THE inside of a hog house is damp in clear weather, insufficient ventilation is indicated. But always provide inlets for fresh air as well as outlets for the foul and moisture-laden air.



The straw which has been placed between these hog houses keeps them warm and comfortable, even in cold, windy weather

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More calves have been raised on Blatchford's Calf Meal than on all other milk substitutes combined.

100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk. Prevents scouring and insures the early maturity of sleek, handsome calves. It is steam-cooked and no trouble to prepare or use.

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The acres used and cultivated time and again, and the area to be gone over to get the fodder are the big items in Silage cost.

Nitrate of Soda, as a Top Dressing worked in when cultivating, will cheapen production of your Silage.

Bigger, more succulent stalks and bigger ears will be yours.

Send post card for free book on "Corn Cultivation"

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Garden—Orchard

Get-Rich-Quick Farming

AS a basis for building an impressive bonanza farming story, news paragraphs could hardly find anything more promising than the experience of Mr. E. G. Clarke, Charlotte County, Virginia. While inspecting his fruit orchard last spring, Mr. Clarke found two pea-bean seeds in his pocket and planted them at the foot of a small cherry tree, and went his way. The beans both germinated, grew, and climbed the friendly cherry tree for support. Just the usual care was given the trio—bean plants and cherry tree—but when ripe the beans exceeded Scriptural measure of production. Instead of yielding fifty- or a hundredfold, Mr. Clarke gathered 662 beans as the crop from the two seeds planted, or a 331-fold production. Had he planted a bushel of pea-bean seeds and secured a proportional yield, his monetary reward would have been \$3,000 at wholesale bean prices. And had he been more ambitious and planted a fair-sized commercial bean field, say 40 acres, his gross income for beans for that season would have been \$30,000.

Some such alluring story as this has raised false hopes in the breast of many a discouraged city toiler, causing him to resign a job, sell his home, and take the bait offered by unscrupulous, silver-tongued real-estate dealers. After making a small payment on an unproductive farm he learns the bitter truth that successful farming is something more than sowing and reaping. Instead, he finds modern farming a complex art requiring not only scientific knowledge of crop adaptation, soil, climate, and moisture, but there must be special seed-bed preparation, plant-food and cultural needs must be met, and full protection be furnished against disease and insect enemies. In addition, the successful farmer must be as skilled in harvesting and marketing as in growing his products. All of these steps require special knowledge born of study and experience. After all has been said, the weather man must be reckoned with. The manufacturer of inanimate products can control his output, but the farm manufacturing plant is a law unto itself.

Developing Fruitful Trees

By S. Thorne

THE growing of a productive fruit tree is not so different from building a house. Each must have a good foundation on which to build the upper and most important part of the structure. The framework or scaffold (the lower limbs of the fruit tree) should be well placed so as not to form crotches, and with most varieties not over seven scaffold branches should be left. When forming the scaffold or foundation for the top of the tree, remember to keep the branches balanced. And remember to make provision for a good top, which produces the profit to the fruit grower.

After planning the future top of the young trees, prune often rather than too heavily at one time. By following this plan but very few large limbs will have to be cut out at any one time.

When pruning bearing trees, always remove all diseased and all bruised, broken, and badly crossing limbs. Never leave a stub where a limb is removed, but make the cut as close to the trunk or large limb as possible.

When the top becomes too dense, thinning can sometimes best be done by removing one or more of the scaffold limbs. As a rule all top pruning should be done by removing small branches rather than large branches. Ever keep in mind that a well-balanced tree is the most productive tree, all things considered.

When pruning in winter, always remember it will be to the advantage of the tree to summer-prune in part rather than to overprune in winter.

DON'T forget, when ordering shrubs for planting about the home grounds that those carrying berries throughout the winter will help to attract bird visitors about the house when winter storms will make them doubly welcome. Shrubs and vines gleaming with bright-hued berries among snow-covered branches will also make your planting cheerful in winter as well as in summer.

Horses Contented In FITZALL Collars

The Fitzall Adjustable Collar makes the horse's work easier because it always fits perfectly no matter what the horse's condition of flesh. It avoids all collar injuries, boils, scalds, galls, sweeny, etc. Horses who wear Fitzall collars do better work and more of it. You cannot expect a horse to do his best when his neck and shoulders are sore. There is no profit in the horse standing in the stall while you are curing up collar injuries.

FITZALL Adjustable Collars Instantly Adjusted to Fit Any Horse, Fat or Thin

These collars fit. They are as simple as a b c, merely the ordinary collar vastly improved. You can adjust them to fit any horse in less time than is required to put on and buckle up the ordinary collar.

Fitzall collars are by far the most economical collar you can buy. You need fewer of them—a collar for every harness—not a collar for every horse. They save time because you never have to lay a horse off to cure collar sores.

Fitzall collars are sold by dealers at the prices of ordinary collars. They are absolutely guaranteed. Ask your dealer for them. If he cannot supply you, we will ship direct upon receipt of the price. Send for our new free book "The Contented Horse" by Dr. E. L. De Seltzer, V. S., V. D., State of Maryland. It is full of valuable information on how to improve and care for your horses. It's free. Write for it to-day.

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Select Seed with Care

By R. E. Rogers

AFTER about ten years of growing onions from seed I am pretty careful about the seed that I use. In the first place, the seed must be grown the year before. Two-year-old seed is a gamble for any grower. Some of it may come up and lots of it probably will never sprout. This is the reason why it is unsafe for a gardener to buy seed from a local grocer who does not get fresh stock each year. There are some who do this, but there are so many who just hold it over from year to year that it makes all such buying more or less of a risk. Anyway, even if the seed were right you could not afford to pay the price asked by the dealer in small lots or packets containing less than an ounce.

So far as I can see there is little difference in seed as to size. Some years the seed is bigger than at other times, but the results seem to be about the same. Sometimes seed from two seed growers differ in size when both were raised the same year. Still, I never could notice any particular difference either in the time of germination or in the growth afterwards. There is a difference sometimes in the looks of seed as to brightness too, but I can't say that I find enough difference in results to attach any importance to color in choosing seed.

If it is possible I like to buy direct from a man who makes it his business to grow just one kind of seed. But if I can't find that kind of a man I want him just to grow onion seed. I think that in this as well as in other lines the specialist has the best of the ordinary grower.

For four or five years I was able to get seed from a grower about 50 miles from home; and I always was satisfied. I contracted ahead just as far as I could for the seed I used, after I had made my plans for the following year. The advantage in this was the pick of the seed crop for me. When the entire crop is at stake it pays to be mighty careful in getting the seed. Recently I have bought of a seedsman who seemed reliable. I have never been fooled on his seed.

I make pretty sure of all seed by the germination test. I always have the seed here in time to make two or three tests. I make at least one myself and send one to the experiment station to try out.

In case there should be any serious trouble in getting a good test, then there is time to return the seed and ask for an adjustment or return of your money. Just once I have had to do this on a small lot I was trying as an experiment. I had no trouble about getting the money that I had sent. Of course I sent the slip that the experiment station returned to me, showing the test. That was evidence to them that something was wrong.

It is possible to look a seedsman up before you deal with him and so know pretty well what he stands for among the farmers who have been buying of him.

Bugs as Blight Carriers

By J. Hoover

EVERY bee and bug that has a "sweet tooth" may be classed as a carrier of fire blight and other similar blight diseases whenever there is any of this infection within reach of them. Bees, ants, and flies of various kinds in the spring are keen to find honey dew and nectar of flowers, and when these insects have been in contact with the infection of fire blight and other blight diseases and then visit other trees in blossom or trees that have been bruised

and from which the sap is escaping, such trees may be infected from the contagious material on the insect's feet and feeding members. All of this goes to show that the fight against blight diseases may be a big undertaking when conditions are favorable for insects carrying the contagion from tree to tree and from one neighborhood to another.

Mole Knockout Drops

A SOUTH CAROLINA plan of destroying moles is to stir unparched peanuts in the white of an egg and while sticky sprinkle the peanuts with a strong poison like arsenate of lead. After stirring well, the peanuts are allowed to dry and then the poisoned peanuts are introduced into the runways of the moles by making a little hole with the point of a stick and dropping the peanuts into the runways, at once closing the holes thus made.

Spray Pump Cleans Well

By D. P. Heckman

TO ANYONE having a walled well to clean I can make a suggestion. We wash ours down by using our spray pump, directing the stream in between the stones and wherever there is dirt. If the spray pump has been used for handling poisonous solutions, it must, of course, be first thoroughly cleaned.

Cleaning the well about twice a year in this manner gives a pure water supply.

Cashing in on Culls

[CONTINUED FROM PAGE 3]

Only eight bottles out of the entire 2,000 quarts of syrup showed any signs of fermentation in the two weeks after bottling. As soon as these bottles began to work we reboiled and bottled them anew, and so had practically no loss.

This is the way we figure our profit from the culls:

EXPENSES	
125 bu. culls, possibly worth 50c a bu.	\$62.50
25 per cent depreciation on bottles..	18.00
127 bottles to retail customers at 5c.	6.35
550 lb granulated sugar at 7c.....	38.50
Labor, four persons, one day at \$2..	8.00
Labor, one person at \$4.....	4.00
Fuel	1.50
Selling costs, advertising, etc.....	13.00
Corks, haulage, breakage, etc.....	15.00
Total cost of 2,187 quarts of syrup.	\$166.85
Cost per gallon of syrup.....	.30
RECEIPTS	
127 quarts syrup, retail at 30c.....	\$38.10
500 gallons, wholesale at 75c.....	375.00
Kept for home use.....	10.00
Total receipts.....	\$423.10
Total expenses.....	166.85
Net profit.....	\$256.25
Profit per bushel as syrup.....	2.05

There might be a temptation to work our entire peach crop into syrup. If we did that, however, we would probably create an overproduction of a commodity of limited consumption. If possible, we intend to sell our peach syrup under a two- or three-year contract, at 50 cents a gallon if necessary, for in wholesale quantities we can make a profit of 66 per cent on the syrup at that price.

It would eliminate a large loss all over the country if peach growers generally would make by-products, such as peach butter, dried peaches, and peach syrup, from their surplus and unmarketable peaches in years of overproduction. Peaches are worth immensely more in the form of by-products than as hog feed.



Well-handled cherry orchards are proving profitable where not overdone. Less expense is needed to protect cherries from insects and diseases than most fruits

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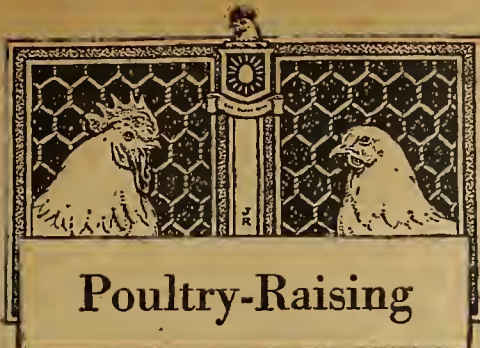
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Poultry-Raising

High Cost of Feed

By John L. Woodbury

FROM my poultry records I am enabled to make the following comparison of prices in January, 1907, ten years ago, with those prevailing in my vicinity in the same month of the present year. On a basis of 100 pounds, wheat in 1907 was \$1.65, now \$2.60; oats, \$1.50, now \$2.25; cracked corn, \$1.10, now \$2.20; mixed feed, \$1.30, now \$1.95.

A good laying mash could be mixed in 1907 for \$1.50 a 100 pounds; now it costs \$2.50. The maximum price received for eggs in January, 1907, was 35 cents as against 50 cents for January, 1917, an increase of only about 43 per cent, while the essential grains have advanced in cost from 50 per cent to 100 per cent.

How do I meet the high prices? First, by lessening the size of my flock, for the fewer number of birds in a given space the easier it is to get a high egg yield; second, by eliminating anything in the form of "deadwood" as fast as it appears; third, by including a generous vegetable element in the ration—mangel beets, turnips, small potatoes, loose cabbage heads, apples, waste squashes and pumpkins, etc. These have a comparatively small nutritive value, but both old and young birds greatly appreciate the variation. They may be fed either raw or cooked and mixed with scalded bran, middlings, or meal. Aside from the less cost, I find chicks will grow faster and hence lay more eggs in the course of a year where some of this waste material forms a portion of the feed in place of an exclusive grain diet.

My opening figures are hardly fair to present conditions, for ten years ago there was invariably a long period in summer when egg prices were low, whereas now markets can usually be found at boarding or camping resorts where fine prices may be obtained. Poultry, too, is much more salable. Indeed, it is not uncommon for fowls to bring as much per pound alive now as was formerly paid for them dressed. And broilers command much higher prices.

In the back-country villages here in Maine, dressed chickens of only fair quality brought 25 cents a pound through the holidays; a few years ago the very top price was 16 cents. Broilers formerly were a drug during the summer months at 12 cents; now they will take them at your door at 20 to 25 cents a pound. Then there is a greatly increased demand for high-grade breeding stock, eggs for hatching, and baby chicks at remunerative prices. Even hen manure has nearly doubled in value in view of the exorbitant cost of fertilizer.

To sum up, hens can still be made profitable in spite of the high cost of feed. But not by keeping scrubs in the old hit-or-miss way. Keep a good quality of stock and cull down to the very best. You can't afford to buy grain at present prices to feed to an indifferent lot of birds.

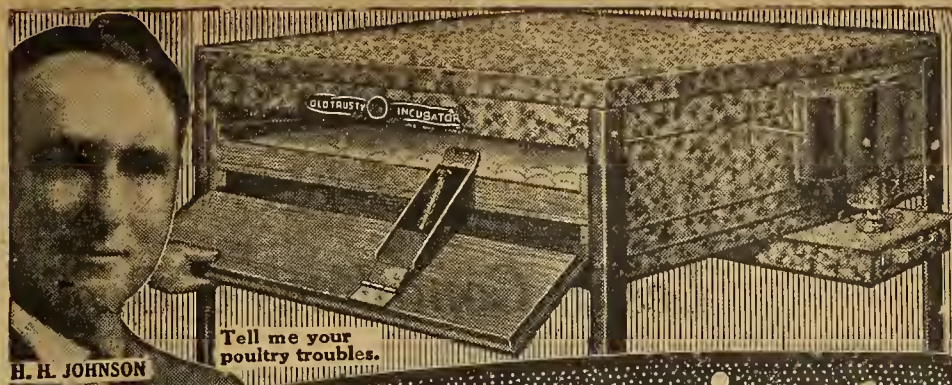
To Save the Chick

By H. L. Wright

WE HAD a hatch of 72 vigorous chicks which we fed bountifully on cornbread about twenty-four hours after we had taken them out of the incubator. When scarcely a week old they developed a severe case of bowel trouble.

We happened to have a trained nurse in the house at that time, so I took her out to see the chicks. She advised treatment somewhat similar to that for a sick baby. We took all feed from the chicks for about one day, allowing only pure fresh water during the fast. When their alimentary canals were almost empty we took up each chick and made it drink three times from a pan containing one pint of water into which had been dissolved one teaspoonful of Epsom salts.

After this the chicks were fed lightly for twenty-four hours; then we gave them curd (boiled clabber), to which had been added two drops of laudanum for every pint of curd. We returned to the regular diet gradually, and had no more dead chicks as a result of bowel trouble.



H. H. JOHNSON

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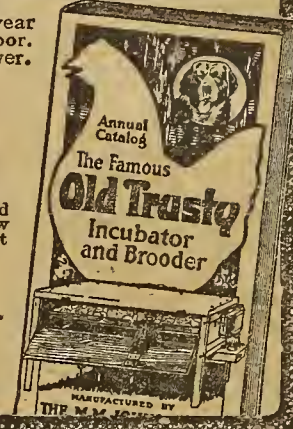
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Send me free, your Majestic Incubator and Brooder Catalog and full details of your remarkable Five Monthly Payment offer.

Name
Address
City State

You will hardly recognize the spoiled heroine of part one in this capable secretary who takes orders from a very cross inventor

The Blue Envelope

Leslie Completes a Day's Work at Her First Real Job

By SOPHIE KERR

PART V

AS I was looking through the desk to see what supplies were there and what condition the machine was in, in came the old man servant who had brought chairs for the multitude. He was muttering to himself, and he stopped and regarded me commiseratingly.

"So ye're the one he picked," he said. "Well, 'tis not likely you'll be here long. One a week has been the av'rage, f'r dear knows how long. Twicet he holloed at thim. Three times there was things exploded in the lab'ratory. Four was fired because they cudn't spell. And there was some tried to flirt with 'im, and some that axed questions unending. Now ye know what ye're up against."

"It sounds dreadful," I said, brushing the typewriter keys as hard as I could.

He came closer. "Whist—ye don't know the worst yet. 'Tis a kind of giant gunpowdher he's inventin' beyant there, an' any minute it may explode tremenjous an' blow us all to flinders."

It did make me feel a little shivery when old George announced that we might be "blown to flinders" at any moment, but I couldn't help wondering if he had been instructed to tell me that very thing in order to test my courage. I brushed away at the typewriter harder than ever and tried to look unconcerned.

"That's too bad," I ventured, "but since you're Irish like myself, I don't believe you'd let me get into any real danger."

"Praise be," cried George, "and are ye Irish, now? I was just thinkin' as how ye looked exthra intilligent. Where in Ireland are ye from, Miss?"

He leaned over the desk with eager friendliness, his old eyes shining.

"My father was Irish," I said. "He came from Dublin—he was born there and never came to America until he was grown."

"Fr'm Dublin way, eh?" said George, delighted. "Think of that now—an' I'm fr'm Dublin meself. Where is your father, Miss, may I ask, and what's his name, to be sure?"

"My father's name was Charles Brennan," I answered, "and he—died when I was ten years old." My lip quivered a little, for I can't talk about Father without missing him. "I don't think I shall ever be able to stop missing him." Instantly George was all kindness.

"What an old fool I am, now," he reproached himself, "to be reminding you of the sorrow on your heart. It's destroyed I am wit' shame at meself.

And you should be at your work and I at mine, f'r the mather will be wantin' me like as not anny minute. I'll pass by frequent, though, an' if there's annything I c'n do f'r ye, ye've only to speak it. An' whist, Miss, don't be scared if annything blows up—it may make a noise, but it won't hurrt ye."

So it was as I suspected—George had been sent to see if I was going to scream and run at the first scare. I had a little chuckle when he had gone out, and then I fell on the mass of letters that Mr. Kennedy had handed me, and began my first work for real pay. Twenty dollars a week too—think of that! I wanted to think of it so much that I could hardly put my mind on that heaping pile of brown, blue, and white papers.

With the first letter my inattention vanished. There, under my hand, was a whole new world, a big world too, with big people in it. There were letters in French and letters in German as well as many, many letters in English. It became clear as I read that the cross, red-headed young Scotchman who had hired me so casually was a very well-known man, and, so far as I could judge, a very eccentric one. He had made some notable discoveries along the lines of explosives, and various foreign Governments were using them. There were some magnificent, officially sealed and imposingly headed letters to prove it. Furthermore, a number of people not connected in any official way with any Government seemed to want to be appointed his agent and negotiate for him the sale of the formula of a certain new explosive. It was all very exciting. But how get it in order! And what to do with such material! To tell the truth, I didn't have the slightest idea where to begin, and so I sorted out everything in quite a childish way.

First I got together all the letters that came from recognized Governments and put them over on the far side of the desk. Then I sorted out all the would-be agents. There were so many I finally divided them in three lots—those who wanted money advanced right away; those who wanted no money now, but a commission when they had sold the new explosive formula; and, finally, those who were willing to pay for being made the agent. These three piles of letters I laid neatly alongside of the government ones.

THIS left a queer residue. There were tailors' bills, grocers' bills, rent bills, coal bills, and various chemists' and manufacturers' bills. There were no end of circulars, from pipes to motor cars. Finally, there were a few personal letters from various friends—all men—one from Glasgow; one from—of all places!—Java; two from Montreal; one from Kansas City. The last, postmarked Toronto, was in a wavering, trembling handwriting, and when I pulled it out of its envelope, it began: "My dear son Ewan." Of course I put it right back and didn't read it, but it was clear to me now that he had a mother and that he didn't take the trouble to read her letters! It made me awfully disgusted with him.

"Think of that now!" cried the little old woman, more enraged than ever. "That rascal, George, never tould me one word that you're here. Go back to your desk, me dear, an' in a whisk I'll have ye a bite and sup, f'r there's no place around here where the likes of you should be eatin'."

I had hardly got back at my desk when in whisked the little old woman with a tray—bacon and eggs and toast and tea, a great big yellow pear and a glass of jelly. She set it down in front of me with a thump.

"There, now," she said. "I know 'tis a bit like breakfast, an' if George had tould me ye were here I'd have had ye a chop and a baked potato and a bit custard. Oh, he's the rare forgetful one, is George! Set to it, dearie—ye're like enough starved."

Out she whisked again, before I could get a chance to ask her anything, but I was so hungry I "set to it" without waiting to be inquisitive.

I was half through my luncheon when the door to the laboratory opened and my strange employer, still in his linen duster, looked in. He seemed not so cross now.

"Hullo!" he said. "Did Mrs. O'Malley fix you up some luncheon?"

"Yes, thank you," I answered. "I had just started

out to find a restaurant when she stopped me and insisted on getting this for me. I sha'n't put her to this inconvenience again—I'll bring my luncheon after this."

"Nothing of the sort," interrupted Mr. Kennedy rudely. "If you eat cold food at noon you'll be sick. Mrs. O'Malley always serves luncheon to my secretary. That's included."

To this I said nothing, though it seemed to me queer enough. Mr. Kennedy now came into my office and looked at the piles of letters on the desk.

"What have you been doing?" he asked abruptly.

I had my mouth full of pear and couldn't answer and I made such desperate efforts to swallow it that Mr. Kennedy permitted his face a twitch of amusement. I felt somewhat encouraged by that—it showed he was human, and he had been so extraordinarily snappish and angry-looking up until now that I'd doubted it. I choked down the pear at last and answered with a gulp:

"I have classified the letters roughly and arranged them according to date. If you will glance at them and give me some idea of what your answers are to be, I will draft letters of reply which you can read and correct.

"Then I can go ahead and answer them all." I was proud of that—it sounded so businesslike and secretaryish. It evidently impressed Mr. Kennedy, for he looked squarely at me for the first time since he had been in the room.

"I say," he said, "you've got the right idea, you know. You must be an old hand at this sort of work. I don't believe I asked you this morning—how much experience have you had? You look like a school-girl."

Miss Trippe had said that a woman in business must discourage personal remarks. So I looked as severe as possible and said, feeling rather foolish:

"THIS is my first position, but at the business school where I studied we were taught the duties of a secretary as part of our regular work." Then, seeing that I had evidently quite awed him with that stiff bit of information, I went on: "There are a large number of unpaid bills here. Do you wish me to make out checks for them and get them off? If so, kindly tell me where your bank books are and I will have the checks ready for you to sign before I go home."

Without a word he walked over to a closed bookcase against the wall and opened it. After digging about among the books he found a bank book and a big check book and handed them over without a word.

"Thank you," I said briskly, like a business woman on the stage. "And just one thing more. Here is a personal letter, evidently from your mother, which I found among these letters and opened by mistake. I am very sorry, but it sha'n't happen again."

Then my opinion of Mr. Ewan Kennedy went up with a jump. His face lightened up wonderfully and even his red hair didn't seem so red. He just grabbed



By Permission of Vitagraph Film Company

"What office hours do you wish me to keep?" asked Leslie. "Nine to five," he answered crossly, "and be here on time too"

I began to realize that I was as hungry as a wolf. No wonder—when I looked at my watch it was after two o'clock. I left the sorted letters where they were and got up and put on my hat and coat, opened the office door and entered the big bare parlor where I had waited in the morning with the others who had come in answer to the advertisement. All of the extra chairs had been taken away and a few pieces of furniture put in place—an old-fashioned square piano and a quaint sofa, and a funny round center table with a beaded-plush cover. I looked about me for the door to the hall, when suddenly another door opened and in popped a severe-looking little old woman, with shoulder shawl and apron, her arms folded—for all the world like a bad little old witch in the pantomimes Mrs. Alex used to take me to see.

"An' what are ye doin' here?" she asked severely.

"I'm Mr. Kennedy's new secretary," I answered meekly, "and I'm going out to get something to eat."

What Has Gone Before

READ THIS, THEN READ THE STORY: Leslie Brennan, orphan heiress, is told by her guardian, "Uncle Bob," that her father wished her to learn a trade and earn her own living for two years unless she is engaged at the age of eighteen. At the same time she learns that Ranny Heeth, to whom she is engaged, only wants to marry her for her money. She breaks her engagement, goes to New York to learn stenography, and is hired by an eccentric, red-headed young man who is experimenting with explosives.

that letter and fairly beamed at me. "That old villain George!" he said. "I've been worried to death at not hearing from my mother this week, and I was just on the point of wiring to find out whether or not she was sick. Thank you for finding it, Miss Brennan."

He opened the letter and began to read it as eagerly as if it was a love letter, and when he had finished it he looked quite like another man, so pleasant and friendly. Of course, he was awfully untidy and his hair was rumpled, but he honestly was almost good-looking, or would have been if he'd been properly dressed. I was so pleased with him for being so glad to hear from his mother that I felt ever so much more easy in my mind being his secretary. I had been feeling dubious—everything was so unlike any secretary's job that I had ever heard or read about.

As soon as he was through reading his mother's letter I handed him the first lot of correspondence. Immediately his face clouded again.

"Have I got to dictate answers to all that?" he said.

"If you will just write a few words in pencil on each, indicating what sort of answer you wish made," I answered in my most secretarial voice, "I will draft replies for your inspection, as I said."

With that I handed him a pencil, so there was nothing more for him to do but get to work. He snatched the pencil out of my hand and ran through the letters more quickly than I had thought any living human being could read, marking them "No" mostly, but here and there "under consideration." Then he threw the whole lot down and stalked off to the laboratory without another word.

By looking over his bank book I discovered that my queer employer was far from being a pauper. He had a really wealthy-looking balance to his credit, so I made out checks for every bill in sight. I put them all neatly together in a wire basket and then got up and opened the laboratory door, for I had been dying to see in there all day.

Such a mess! A big bare room, probably once the dining-room, with high uncurtained windows. Rows of shelves lined the walls and they were filled with bottles and boxes and packages of all shapes and sizes. There were two rough tables, with shelves built right down the middle above them, with gas jets and a sink set into one. Seated on a high stool before one of the tables was Mr. Kennedy, still wearing his linen duster garment, and sprawled over the table before him, while he figured wildly all up and down some sheets of yellow paper.

"What do you mean by coming in here without knocking?" he said, looking for all the world like a bad, mad little boy. "You ought to know better than that."

It was so entirely unexpected and so rude that I felt myself get red with rage all over.

"You didn't knock before entering my office," I answered, "and though I beg your pardon for not knocking, you didn't tell me I ought to knock. And if you didn't want to be disturbed, you should lock the door," I said finally, standing my ground. "I have your checks ready for you to sign and I'd like to send them out to-night."

With that I shut the door and retreated to my desk. Presently there came a knock at the door.

"Come in," I said, trying not to smile, and in walked Mr. Kennedy, looking rather ashamed of himself, but still crossish.

"Where are those checks?" he demanded. I produced them and he signed them forthwith. As he was signing the last one, I said, still very secretarial:

"What office hours do you wish me to keep, Mr. Kennedy?"

"Nine to five," he said, "and be here on time too." With that speech he went back to the laboratory. It sounds very rude and disagreeable as I write it down, but, truly, he was so like a bad boy that I couldn't be angry. It seemed more like a joke than a reproof. As I thumped the last envelope to make it stick I said to myself: "Yes, I like him." And I meant it.

How Minnie laughed when I told her about my new job that night! I acted it all out—Mr. Kennedy, the mob of would-be secretaries, old George, Mrs. O'Malley, and I,—everything we did or said. It was heaps of fun. She was properly impressed by my salary—with luncheon thrown in! But she urged me to find out as much as I could about Mr. Kennedy and his business. "For," she said, "you never can tell. He may be a counterfeiter or some sort of an anarchist, and the whole place may be pinched some day and you along with it. That explosive story may be nothing but a blind to hide his real business."

[CONTINUED IN NEXT ISSUE]

Every Boy Welcome

By G. W. Tuttle

A PASTOR in arranging the words "Everybody welcome" on his movable letter sign accidentally left out a letter. The notice read, "Everyboy welcome."

The liveliest thing in this world is a boy. He can turn the whole house upside down and then stand on his head in the middle of the lawn, while the hired man is turning around twice. When the boy goes to church he wriggles around in his seat like a centipede. Sometimes he goes to sleep and dreams of catching a whopping big trout in Smith's brook, and awakes with a guilty start as the minister gets to fourthly.

But all this is natural, and we like natural boys. It takes a live man to understand and sympathize with a boy. Alas for the man who forgets that he was once a boy! He is about as useful to the world as a dried-up mummy of the days of the Pharaohs.

He who wins a boy's friendship has won something that gold cannot purchase. There is usually some man or woman, or both, whom the boy thinks rings true. They are the Book of Life to the boy. He reads the pages that are being turned every day. They are his textbook, where life's lessons stand out big, and luminous, and attractive.

A boy is an unsolved problem, an unworked mine. Give him a royal welcome now and he will pay big dividends by and by. Ah! we need seeing eyes when we look at a boy in order that we may even have a glimpse of the wonderful possibilities wrapped in a single boy.

An ounce of example is worth a ton of preaching for a boy. He never can see the use of multiplying words. He thinks of the dictionary as a lot of useless words gathered together by some foolish man.


A very small boy of my acquaintance almost invariably goes to sleep in church. One Sunday he failed to get his usual nap. When his parents laughingly asked him how it happened that he was so wide awake, he said, "Mr. Brown" (his pastor) "talked too much."

Give the boy a rich welcome, because there is always hope for the boy. Rub him the right way and, presto, change, out flies the evil and in comes the good; but rub him the wrong way and evil multiplies. Let us welcome, and not repulse, help, and not hinder, the boy.

New Puzzles

Puzzling for Buttermilk

Mother Jones is a firm believer in puzzles for the mind and buttermilk for the body in the raising of children, and in the picture we see her providing a happy combination of the two. She told



the children that if they could show her how to put a pint in the three-pint bottle and a pint in the five-pint pail they might drink five pints of the nine pints of buttermilk in the jug.

The puzzle consists in showing how the youngsters gained the reward by the simplest method without resorting to guesswork in measuring, or using other receptacles than those shown in the picture.

Answers to Puzzles

Puzzles Printed Last Issue

Two Men with Hoes

There were 12 rows and John and Ben each planted and covered 6 rows. John planted a row in 20 minutes and covered it in 60 minutes. Ben planted in 40 minutes and covered in 40 minutes. As it was stated each earned the same amount, they each had to do half the planting and half the covering, as there was no way of determining the relative values of the two kinds of work. Each, therefore, had to take the same time to plant and cover a row. As Ben required 20 minutes more to cover than John did to plant, John took 20 minutes more to cover than Ben did to plant, but John's time for covering was half as much again as Ben's for planting, so that Ben's time for planting was 40 minutes per row.

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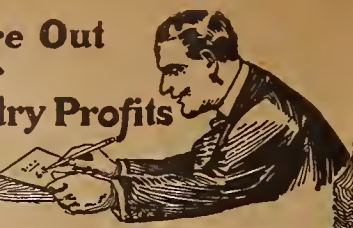
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Betty's Luck with Chicks

A Timely Letter from the June Bride



DEAREST SISTER: I feel quite flattered to have you ask me for advice about raising incubator chicks, and I'll try to answer all your questions to the best of my ability. You will have to start the incubator several days before you put in the eggs, so the temperature will have a chance to rise to the proper degree. After the eggs are in the incubator, never let the temperature get either above or below the required degree, which means that you will have to trim the wick once each day and also fill the lamp and regulate the thermostat according to the needs. But I need not tell you this, for these things are explained in the instruction book.

Hatching the chicks is the least of your worries. Far more important than the hatching is the brooding, which offers all kinds of opportunities for loss if not handled properly. Do be very careful about drafts or sudden changes in temperature in the room where the brooders are kept. The chicks, especially during the first few weeks, are particularly susceptible to irregularities of this kind. That does not mean that there should not be plenty of fresh air in the room; but if it is the least bit cold, screens should be placed by the windows so that the air does not strike the chicks directly.

The brooders themselves should be kept at all times warm enough for the chicks to be thoroughly comfortable without crowding, which is often fatal to them. Enough brooders should be provided so that each chick will have plenty of room without being forced outside the brooder at night. I hope you will not have any such experience with the lamps as we had before we understood exactly how to regulate them. I never will forget how we were awakened from sound sleep one night with a strong smell of coal oil in the house, and when Billy went down to investigate he found the room with the brooders black with smoke, the air thick enough to cut with a knife. We thought we had been overly cautious about trimming and filling the lamp, but I assure you this experience did not have to be repeated in order to drive its lessons home to us.

Of course I need not emphasize the importance of absolute cleanliness in every detail. When we had the brooders in the house we found it very satisfactory to spread heavy paper over the floor, and covered this with clean, fresh sand, which we changed regularly twice each week. Some people put chaff on the floor of the brooders, but we have been very successful with just sand. All the water utensils should be scalded each day, and absolutely fresh water kept before them at all times.

AS TO the actual feeding of the young chicks there are always lots of different methods which are employed by different people with good results. For instance, Mrs. White thinks that wet mashers are essential to proper growth, but we should consider such a menu suicidal. When the chicks first come out of the incubator they have in their bodies, unabsorbed, the yolk of the egg, which nourishes them for at least thirty-six hours, so that no food is necessary at first. The water and fine grit are essential to start the digestive organs to do their proper functions. We fed dried bread crumbs and finely chopped hard-boiled eggs as a first feed, feeding this every three hours for the first three days.

Then we gradually substituted rolled oats ground in a meat grinder, and mixed this at first with bread crumbs, as they had to be taught to relish this diet. By the end of the first week we had begun on the grain food, which we didn't mix ourselves but bought in the form of commercial chick feed. We fed this every three hours for the first week and then every four hours at the rate of one-half pint for one hundred chicks, which is what they can clean up in about ten minutes. In between times they had before them a hopper containing a mixture of one part of finely sifted beef scraps, one part of fine charcoal, and two parts of finely sifted bran, with the addition of one part of corn meal in the second week, also omitting to sift the bran.

During the first week we fed them also beets or turnips ground in the meat grinder, offering this about once or twice a day, and gradually giving it to them oftener in the second week. We also had clabber before them when we had it, and this they relished greatly, and of course we kept charcoal and grit before them constantly. Some people don't take the trouble to sift the beef scraps, bran, etc., but we have found that it pays to take these precautions while the chicks are too young to manage large mouthfuls. An easy way to do it is to spread a paper on the floor and use a wire-bottomed incubator tray as sifter.

OUR chicks are two weeks old to-day and are beginning to act like real "grown-ups." They have safely passed one of the most critical periods of their lives and we have not lost one, though we feel like "rapping wood" for fear even mentioning it will bring us bad luck. We were fortunate, to begin with, in having fine, well-shaped eggs from our own pure-bred stock, and we filled out our 240-egg incubator with 100 eggs shipped to us from a well-known breeder of our stock in Kentucky. These eggs came through in fine condition—packed in a regular paper egg carton—and not one of them was broken, which seemed to us very remarkable, and shows how efficient it is to use these cartons. A neighbor told me that last year from the same shipping place and out of the same number of eggs ten were broken, though each egg had been carefully wrapped in paper and padded with sawdust inside the basket.

Billy was rushed with outside work, so I took charge of the incubator, which meant refilling the lamp and trimming the wick each morning, and turning and airing the eggs the required length of time every day. Even the candling process wasn't difficult, and we were greatly pleased to find that the eggs we had selected were proving so strongly fertile.

I do wish you could have been here the day we took them out of the incubator and transferred them to their new abode on the dining-room floor, where we had fitted up two brooders with little wire fences around each one. The dining-room was already dismantled for the process of putting on beaver boarding, and as the rush of the spring work had delayed the completion of this job it made a most convenient place to put them for the first three weeks.

We had hoped to put them outside in the old duck house, which Billy had got ready with a clean sand floor and an extra layer of stripping nailed on the outside to keep out all cold and draft, and a window cut in to give plenty of sunlight, and next week, if the weather is milder, we shall move them there so that they can have a chance at some fresh green grass as soon as it starts in their little fenced-in yard.

We intend to keep up the same rations this coming week, and by the fourth week they will, to more or less extent, be able to look out for themselves. Of course we shall continue the grain feed two or three times each day and will have the hopper of dry mash continually before them, but they will be able to hunt for their own green food to a great extent. After the tenth week they can be treated as any other full-grown fowl.

I have talked so much about chickens that I have no time to tell you the interesting events of the week. Kate presented us with the cutest little black colt you ever saw, and old Fanny, not to be outdone, was discovered in the back pasture field with a beautiful little bull calf, which, due to the unpopularity of its sex, is to be slaughtered in two or three weeks. In the meantime it is learning to take its nourishment out of a bottle with a nipple and, like modern babies, is perfectly content with this subterfuge, not knowing what it is missing.

Do write to me if there are any further things you want to know about the incubator. I do hope you will have good results. The weather will be more settled when yours hatch, which will do away with many of the difficulties.

Betty

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No. 3199—Shirt Waist with Strap Trimming. 34 to 44 bust. The price of this pattern is fourteen cents

The Dressmaking Lesson

By GRACE MARGARET GOULD

THE WAIST: This model has the strapped trimming coming from under the collar, crossing in front, running into the small slots, and buttoning through on outside of waist. This appears to hold the blouse closed, but the fastening is down the front, there being a fly for the buttonholes.

In making waist, turn hems and finish off closing first. Cut fly double of satin to finish a trifle narrower than hem, and join it in with hem on right front.

The bound buttonholes and slots too can be finished off before seams are closed. Mark slots and buttonholes, but do not cut them. Bind buttonholes first. The waist satin can be used for binding. Cut an oblong piece large enough to extend about a half-inch beyond buttonhole on all sides. Place this on right side of waist over mark for buttonhole, with right side of binding next to right side of waist; mark buttonhole on this and stitch around mark, keeping about one eighth of an inch from it, and stitching parallel to it at sides, and at right angles to these stitchings across ends. Cut slash, and snip diagonally in corners, nearly to stitching. Turn binding through slash on wrong side, turn under raw edges, and stitch or fell them in place, laying surplus fullness at ends in small plaits. The slot slashes are bound in the same way. There is some slight fullness in waist in front. Run a gathering thread across shoulder to hold this before closing seams. For shoulder, etc., the French seam will give neatest finish.

The collar is double. The straps should

be stitched on wrong side and turned right side out, so that no stitching will show on outside. These join under collar.

The sleeve finishes with a deep cuff, which in turn finishes with a flared turn-back. Both cuff and turn-back are double. The bottom of sleeve is gathered and inserted between two thicknesses of cuff, and the cuff is inserted at bottom between two thicknesses of turn-back. At the armhole the sleeve has fullness. This is on top of sleeve; but be careful not to stretch sleeve the rest of the way. It should be eased to armhole at all points. The bottom of waist is finished with casing and elastic.

THE SKIRT: The skirt is in four pieces, being formed of a wide straight-panel front and back and circular sides. Fold tucks on edges of panels, lap these flat over sides, and stitch them in place. The beauty of this skirt is in having the yoke belt fit smoothly while the skirt falls in soft folds below. It would be a good plan to cut the belt in some cheap lining material, fit it, and cut the outside by this lining.

Finish off the edges of belt, lap belt over skirt, baste to position, then finish off foundation waistband, baste or pin the skirt to this and try it on. If you have followed the plan suggested, of cutting the belt in lining material, it should fit smoothly. However, it could be taken up in the back if necessary. Stitch the yoke, etc., as illustrated.

You will notice in the small illustration that there is a trimming piece on back of belt. The skirt opens under this and down at side of panel. Face back edges of girdle and tabs, and bind raw edges of panel. Finish closing with hooks and eyes.

If you desire the pocket shown in the small view, insert it in side front seams of skirt when stitching these. The pockets are cut double and have bound buttonholes for trimming.

In making buttonholes on skirt use a firm thin piece of silk for binding. Finish buttonholes with buttons.

After skirt is finished, try it on and turn the hem. Hem by hand or neat machine stitching. Bind raw edges on the inside of skirt.



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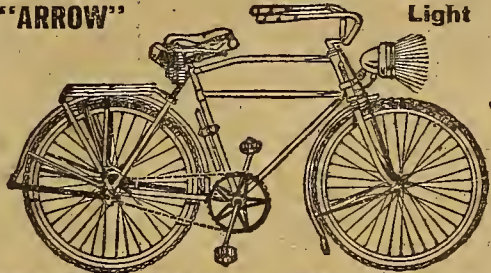
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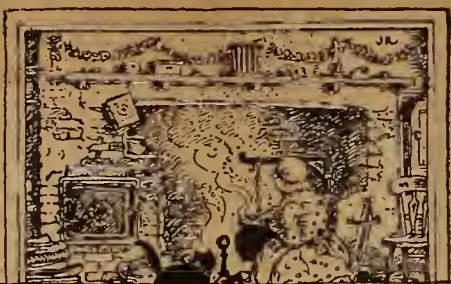
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Housewife's Club

On Washington's Birthday

By Emily Rose Burt

If you're inclined to masquerade
Hunt up great-grandmother's brocade,
Great granddad's tricorn soldier hat,
Old-fashioned wigs and duds like that,
And sally out at half-past eight
Feb. twenty-second is the date.

THESE verses were written on little
folders cut in the shape of old-fash-
ioned formal bouquets with a narrow
red, white, and blue ribbon tied around
the stem.

Consequently, most of the guests
came in costume, which in many cases
was rigged up from attic and piece bag.
The results were good, however, and
everybody was ready to enter into the
occasion and dance the Virginia reel
soon after arriving.

When they were all breathless from
this, the hostess asked them to be seated
and passed around a cocked hat full of
tiny slips of paper, each

bearing a word which was

to be kept secret by the

one who drew it. Follow-

ing this, everyone was sup-

plied with a sheet of black

paper and a pair of scis-

sors adorned with a patri-

otic bow. The hostess then

announced that each per-

son must cut a silhouette

of the object named on the

paper. The objects select-

ed were all characteristic

of George Washington's

time; for instance, a warm-

ing pan, a foot stove, a

four-poster, a secretary, a

tin Colonial lantern, a can-

dlestick, a fireplace, a pair

of snuffers, a gate-legged

table, a grandfather's clock,

a spinning wheel, and a

quill pen.

When everybody had fin-

ished, the silhouettes were

collected and then dis-

played in turn (without

mentioning the name of

the artist), for the com-

pany to guess. The prize

for the best result by vote

was a Colonial candlestick

of brass.

Supper was announced

early, and everyone en-

tered the dining-room to

find the table patriotically

decorated. In the center

was a bright red geranium

in a blue-crêpe paper-

frilled pot tied about with white ribbon.

A host of tiny silk American flags were

stuck into the earth around the base of

the flower and attached to red, white,

and blue baby ribbon streamers which

ran out to the different places, where

they were tied to tiny white place cards

cut in the shape of an old Colonial farm-

house.

The gayest feature was the flock of

toy balloons, red, white, and blue, which

swayed by long strings, one from each

chair back.

The guests were given the flags fas-

tened to the place cards as favors, and

were then asked to untie their balloons.

With these a jolly race was proposed.

A goal was appointed, and then the

company was divided into groups of

three who started from the same point

and aimed to see who could first propel

his or her balloon to the goal by means

of a fan. The winners in the different

groups then competed in a second heat

until the winner in the finals trium-

phantly received the prize—a quaint

round goody box (really a marshmallow

tin covered with old-fashioned chintz)

filled with candied cherries.

The Value of Salads

By Elizabeth Ayer

SALADS have been thought by many
to be merely a "party food," when in
reality they should be a part of the
daily menu in every household. Were it
not for the importance of the constitu-
ents, the attractive appearance of salads
would be reason enough for their fre-
quent use.

The minerals contained in the fruits
and vegetables used in salads are very

important to the body, and many of
these would not be used in any other
way.

The oil in the salad dressing is an-
other important item to be considered
in the food value of salads.

Fish, meat, fruits, vegetables, nuts,
cheese, and a great many other food-
stuffs are used in giving variety.

A light salad may be served with a
heavy dinner as a substitute for a des-
sert, while a heavy salad of meat or
fish may be served as the main part of
a luncheon or supper.

The farm housekeeper has an excel-
lent variety of material for salads from
her garden and orchard in the summer,
while in the winter canned vegetables
and meats may be used.

Any salad served on lettuce leaves is
an attractive as well as a healthful ad-
dition to the dining table.

Washing Woolen Blankets

THE most important thing to remem-
ber in washing woolen blankets or
clothing is that the temperature of the
water used should be practically the
same throughout. If the water used to
wash in is cold, rinse in cold water; if
the washing water is warm, rinse in
warm water. Hot water should never
be used, however.

This is my way of washing blankets,
and it always leaves them soft and
fluffy, with the least possible amount of
shrinkage: I shave a bar of good white
soap into a quart of water and let it
stand overnight. I then heat it until
the soap is dissolved, add a cup of
borax, and pour the mixture into a tub

Crocheted Bedroom Slipper



HERE is one of a comfortable and very attractive pair of
bedroom slippers. They were made of blue yarn finished
with satin ribbon. For complete directions for making,
send four cents in stamps to the Fancy-Work Editor, Farm
and Fireside, Springfield, Ohio.

of cold water. I then immerse the
blankets and let them soak for twenty-
four hours. Usually all the dirt is thor-
oughly loosened by this time, but a few
spots may have to be rubbed. I then
rinse through cold soft water twice, and
hang out to dry.

Napkin Holders

INSTEAD of napkin rings we use linen
holders in our family. The holders
are made exactly in the form of a
square envelope with the flaps buttoned
over. Each one is monogrammed with
the initials of the member to whom it
belongs. The holders are sent to the
laundry frequently and are always
clean and fresh, and they serve to keep
each person's napkin separate from
everyone else's.

Your Spring Clothes

THE Fashion Editor has been busy
for several months studying designs
and models of spring clothes in the
shops of New York, and she has se-
lected half a dozen of the prettiest and
most practical for the March 3d fash-
ion page.

Realizing that some of our readers
will want to buy the exact models il-
lustrated, we have arranged for a new
shopping service by which you may
send your order to the Fashion Editor
for the dress or blouse you select, and
she will buy it for you.

Before deciding on your spring
clothes, watch for the March 3d fash-
ion page.

Making Furniture Look New

By Jane Macpherson

I HAVE found that I can make my old
furniture look new and clean at small
expense. The process requires some
time and energy, but the results are
most gratifying.

I first remove the varnish with a var-
nish remover which I purchase at a
hardware store. I apply this with an
ordinary paint brush, and allow it to
stand for about ten minutes. Then,
with a small piece of glass (broken win-
dow pane) I remove all the old varnish.
Often I have to repeat this process sev-
eral times before all the varnish is
removed.

If the wood is open-grained, as chest-
nut, oak, or walnut, a filler must be used
to make the surface smooth. I usually
buy this filler, although it can be made
at home from a pound of cornstarch,
three-fourths pint of boiled linseed oil
or turpentine, and colored with burnt
umber or lampblack.

The filler will color the wood slightly,
and sometimes it is advisable to stain
the wood before the filler is applied. I
rub the filler on the furniture, and allow
it to stand for about fifteen minutes.
Then I remove all the surplus filler. I
find that wood which is not open-
grained, as cypress, pine, and maple,
does not need a filler.

After I have applied the stain and
the filler, I cover the piece with a floor
or furniture varnish or a wax. If I de-
sire a wax finish I put the stain on and
let it stand until the next day, when I
apply the wax or varnish.

I prefer the wax finish because it does

not gather the dust as

does the varnish, and it is

more easily applied. It

does not scratch so easily,

and if it is scratched, more

wax may be easily added

and the furniture polished

again. If the wax does

not rub on smoothly, heat

the cloth, and the polish is

secured more easily. I ap-

ply the wax sparingly,

with a soft woolen cloth,

and allow it to stand from

five to ten minutes. Then

I rub it vigorously to give

the polish. I generally use

two coats of wax, because

it makes a much better

finish. If the wax is al-

lowed to stand too long be-

fore it is polished, it will

show finger marks.

When I use varnish I

put it on and allow it to

stand two days so that it

will dry properly. Then I

rub it with a very fine

sandpaper to smooth the

surface. After this I ap-

ply the second coat of var-

nish, and my furniture is

as good as new.

PRUNE WHIP—Twenty-

one large prunes, stewed

and chopped fine, six egg

whites, beaten stiff, three-

fourths cupful of pow-

dered sugar. Add sugar

to beaten egg whites. Add

prunes and mix well. Bake in an earth-

enware dish in a slow oven. Serve with

whipped cream. L. M. Z., Ohio.

PINEAPPLE SALAD—Three medium-

sized apples, pared and cut into dices,

two stalks of celery, cut fine, one pound

of English walnuts, cut in small pieces,

one pound of dates, cut in small pieces,

one-half pound of white grapes, cut in

half and seeded. Mix thoroughly with

mayonnaise dressing. One can of pine-

apple, cut in small pieces. Serve on let-

tuce leaf. C. O. B., Idaho.

CREAMED FISH WITH PEAS—A good

luncheon dish may be made from left-

over salmon or tuna fish and peas.

Make a thick white sauce, add the sal-

mon flaked into small pieces, and add

peas. Salt to taste. Serve hot on but-

tered toast. L. P., Illinois.

POTATO CHIPS—Select large, even po-

tatoes, scrub, and cut on potato or cab-

bage cutter very thin. Rinse until all

the starch is out and soak in cold or

iced water for one hour. Drain and

cook in hot lard in an old-fashioned

skillet. Place the chips in one at a

time until the skillet is filled on top.

Turn until brown, drain on waxed pa-

per and sprinkle with a little salt.

These are excellent for picnics and the

like. R. E. M., New Hampshire.

CARROT MARMALADE—Scrape carrots

and cut in small dice. Cook until tender

in enough



T. R. LONG, Auto Contest Manager

Write Me Quick

You Can Have One of These Three Automobiles Without a Cent of Cost

Sign your name and address on the coupon at the right, clip it out and mail it to me right away. That starts you on the road to success in winning one of the three automobiles I am going to give away without one cent of cost. Nothing difficult about that, is there? Look at the pictures of the three people below to whom I gave automobiles on January 15th—they signed and mailed the coupon—now they each own a dandy automobile that I gave them without one cent of expense. As soon as I hear from you, I will tell you all about FARM AND FIRESIDE'S SECOND GRAND PRIZE DISTRIBUTION and tell you just how to get an automobile all your own, without spending a cent for it. Hurry and mail the coupon to-day—it gives you a flying, winning start.



**First Grand Prize
Overland Touring Car**

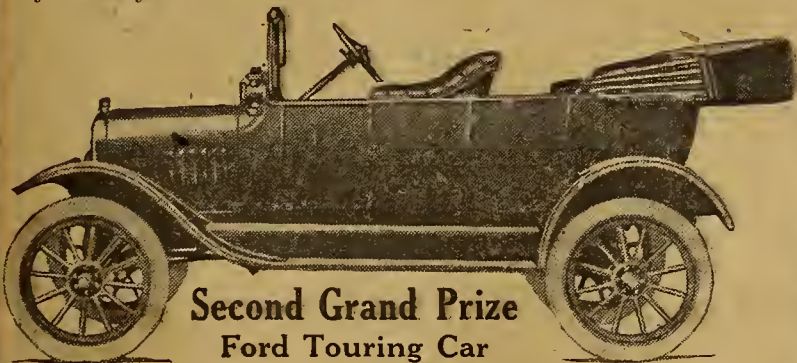
3 More Autos to be Given Away

\$635.00 Overland Touring Car

Above is illustrated the 1917 Model \$635.00 Overland Automobile, which I am going to give away without cost, freight prepaid, to some one who answers my advertisement. It is a five-passenger Touring Car, 31½ horse power, has electric lights and starter, headlight dimmers, left hand drive, center control, one-man top. This splendid car is large and roomy for five adults, truly a marvel for speed, power and endurance. Your opportunity to own this excellent car is here, now. Send the coupon at once—that starts things rolling your way.

Two 1917 Model Ford Touring Cars

The illustrations below are the newest 1917 Model Five-Passenger Ford Touring Cars, which I am going to give away without a cent of cost and freight prepaid in FARM AND FIRESIDE'S SECOND GRAND PRIZE DISTRIBUTION. These cars are fully equipped—a well-known automobile that needs no introduction to our readers. Nothing would give you more genuine, lasting satisfaction than being the owner of one of these two Fords. Remember, either one of these Fords or the \$635.00 Overland will not cost you one cent. Mail the coupon and start-off with 5,000 Free VOTES.



**Second Grand Prize
Ford Touring Car**

There are No Losers Everyone is Rewarded

There is no chance for you to lose in this All-Can-Win Grand Prize Distribution. No matter who you are, where you live or what you do, you are bound to get your share of these valuable prizes if you will act quick and write me at once.

Not only am I going to give away these three automobiles without one cent of cost, but I am going to give away a \$50.00 Diamond, a \$75.00 Victrola, Fur Coat, Gold Watches, etc. But, the important thing is to write me at once. For signing and mailing the coupon I will give you 5,000 Free Votes and enter your name for consideration in awarding the three automobiles and the many other Grand Prizes. FARM AND FIRESIDE allows me to spend thousands of dollars every year in giving away fine prizes to our friends and readers.

FARM AND FIRESIDE'S SECOND GRAND PRIZE DISTRIBUTION is just starting. Mail the coupon at once—be the first in your neighborhood to get full details of this remarkably liberal offer so you can get your share of these fine rewards. Act quickly and hurry coupon back to me right away.

Three Auto Winners



Dear Sir:
When you told me I was the winner of the Overland, I could hardly make myself believe it. Please accept my heartiest thanks for the splendid way you treated me throughout the contest and for the handsome prize I so easily won.
Yours truly,
Paul Halbert, W. Va.



Dear Sir:
Words fail me when I attempt to thank you for the Ford Touring Car that I have won. I will surely always speak a good word for FARM AND FIRESIDE and for the help you gave me in winning this dandy automobile. Very truly yours,
Mrs. R. B. Kilmer, W. Va.



Dear Sir:
I am certainly mighty proud to know that I won the Ford Touring Car. Every one seemed so anxious to help and boost me along that I guess I couldn't keep from winning. Thank you again and again for the excellent reward. Sincerely,
Mrs. Geo. Bishop, Ohio.



**Third Grand Prize
Ford Touring Car**

Don't Delay—Act Quick Mail the Coupon To-day

Surely you want one of these three fine, new automobiles. Can you think of a quicker or surer way to get one of them than to mail the coupon at once?

I never heard of either Mr. Halbert, Mrs. Kilmer, or Mrs. Bishop (three recent auto winners) until they answered my advertisement, just as I am asking you to do. Look at their pictures—read their letters. Can't you do as well as they did? There is nothing difficult about getting an automobile from me—my plan is the easiest one of all. After you have heard from me, you will be surprised at how easy it is to get an automobile for your own and without a cent of expense.

Absolutely no one has any advantage over you. You stand just as good a chance to get one of these three automobiles as anyone. All I ask in exchange for these magnificent rewards is that you spend a little of your spare time among your neighbors and friends. Isn't that an easy way to get an auto?

Sign, clip and mail the coupon at once—that puts you right in line to get one of the autos without a cent of cost. Hurry—write me to-day—at once. Address:

Post Office _____
St. or R. F. D. _____
Name _____
Please send me by return mail full information regarding your Second Semi-Annual Grand Prize Distribution. Also credit me with 5,000 FREE VOTES and enter my name for consideration in awarding the Grand Prizes.
SIGN, CLIP AND MAIL THIS COUPON TO-DAY
State _____ Box No. _____

T. R. LONG, Auto Contest Manager
FARM AND FIRESIDE **Dept. 22** **Springfield, Ohio**

FREE

POST PAID

This Big Sample Box of My Famous Healing Compound



C. G. Phillips
The Wool Fat Man



I don't ask you to send me a cent of money — not even for postage. Just mail me the coupon below and I will send you this liberal sample box of CORONA WOOL FAT absolutely free. I want you to see for yourself what a wonderful healing preparation CORONA WOOL FAT is. I want to prove to you on your own horses and cows, **WITHOUT A CENT OF COST**, how quickly it will heal and cure Split Hoofs, Contracted Feet, Corns, Grease Heel, Scratches, Thrush, Quarter Crack, Barb Wire Cuts, Sore Shoulders, Sore Teats on Cows, Boils, Ulcers, Old Sores, etc. You will be surprised at the results. Don't miss this opportunity to try CORONA WOOL FAT without a cent of cost. Send the coupon today and get the Free Trial Box.



Cracked Hoofs—Before and after using Corona Wool Fat



Corona Heals Barb Wire Cuts Smoothly



Grease Heel—Before and after using Corona Wool Fat



Heals Inflamed Cow's Udders

CORONA WOOL FAT

The Wonderful Healing Compound

CORONA WOOL FAT is not a grease, but the fatty secretions extracted from the skin and wool of the sheep. It is unlike anything you ever tried or used. Don't confuse it with salves which contain grease or blister compounds. It is the only remedy which will penetrate the shell of a horse's hoof—take out the soreness and grow new hoof. It is cooling, healing, penetrating and quick in action. CORONA WOOL FAT is

USED BY MORE THAN 1,000,000 FARMERS STOCKMEN AND HORSE OWNERS

Read these letters — we have thousands more like them:

"Corona Wool Fat Compound is all you claim for it. I used it on an old wire cut and it healed it up all O. K. It is the best preparation I ever used." E. T. Sheldon, R. F. D. Carrier, Tracy, Minn.

"I have used Corona Wool Fat Compound on horses' feet that were so bad they could hardly travel. Since using it they travel like colts. I have never seen anything to equal it." Harry Barr, Smyrna, Pa.

"I tried your Corona Wool Fat Compound on my horse which had a bad case of scratches. I had given up trying to cure him, but finally tried Corona and it did the work. Horse is now in good condition." P. L. Tressey, Etna, N. H.

CORONA WOOL FAT is readily absorbed by skin and hoof, penetrates to the inflamed inner tissues and

Heals Without Leaving a Scar

Corona does not burn or blister, grows hair over cuts and sores, causes no pain, soothes and heals surprisingly quick. The free sample will prove my claim. The coupon will bring it to you postpaid and I will also send you a copy of my FREE BOOK—"HOW TO TREAT HOOFS, WOUNDS, SORES, etc." Send the coupon today and get this useful book and the free sample of CORONA WOOL FAT.

C. G. PHILLIPS, Mgr.

CORONA MFG. CO., Kenton, Ohio
25 Corona Block

Also makers of Corona Balm, Corona Tonic and Corona Horn Preventive.

Corona Wool Fat is used and endorsed in the finest stables everywhere

FREE Sample Coupon

C. G. PHILLIPS, Mgr.
THE CORONA MFG. CO.
25 Corona Block, Kenton, Ohio

Dear Sir:—Without obligation or cost to me, please send me postpaid the free trial box of CORONA WOOL FAT Compound. Also your book "How to Treat Hoofs, Wounds, and Sores." I keep

.....horses.....mules.....cattle.....hogs.....sheep

Mention ailment you intend to use it on.....

My dealer's name is.....

My name.....

Address.....R.F.D.....

County.....State.....

How To
Treat
Hoofs
Wounds
Sores Etc.

Morris & Co's. Team
International Prize
Winners.

Kept in good traveling
condition by the help of
Corona Wool Fat
Compound.



If you have ever attended the Great International Live Stock Show at Chicago you have seen this prize winning six horse team in action. They are owned by Morris & Co., Packers. Corona Wool Fat Compound is kept in the Morris & Co. stables and used liberally to keep the hoofs of these famous horses in perfect condition.

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FARM *and* FIRESIDE

The National Farm Paper - Twice a Month

ESTABLISHED 1877

5 cents a copy

Western Edition

Saturday, March 3, 1917



PHOTOGRAPH BY JOHN KABEL

"The plowman homeward plods his weary way"

\$1150F. o. b.
RacineMitchell Junior—a 40 h. p. Six
120-inch Wheelbase**Mitchell**
SIXES**\$1460**F. o. b.
Racine7-Passenger—48-Horsepower
127-inch Wheelbase

A 40-Year Car

Yet Not Strong Enough

A New Standard

This year, for the first time, we announce in the Mitchell 100 per cent over-strength. That is, twice the needed strength in every vital part.

Under our former standards the margin of safety was figured at 50 per cent. And that was considered extreme.

Two Mitchell cars, built under old standards, have already exceeded 200,000 miles each, or 40 years of ordinary service. Seven cars that we know of have averaged over 175,000 miles each.

Then why this doubled standard?

For a Lifetime Car

The object is a lifetime car.

We feel that the Mitchell is standardized. Neither type nor style is likely to greatly change. So our entire plant has been equipped to produce this one type economically.

John W. Bate, our efficiency engineer, spent a year in Europe just before the war. He consulted with engineers there. They were aiming at double strength, based on European roads.

Since then, part by part, he has brought the Mitchell to a like standard, based on American roads.

What About Lightness?

For years the talk has been lightness. That is a good principle but a bad fetish. We believe that it went too far.

With present steel prices, a too-light car means a big saving. So there is reason to defend it.

John W. Bate has not sacrificed lightness where other methods could prevent

it. Steering parts, axles, bearings etc., are made oversize. But most of this 100 per cent over-strength comes through costly steel.

Over 440 parts in the Mitchell are now made of toughened steel. All parts which get a major strain are made of Chrome-Vanadium. We pay for steel used in the Mitchell as high as 15 cents per pound.

How Do We Know?

Mr. Bate has worn out fifty cars in proving needed strength. He has tests for each important part to prove the double strength.

Every gear is tested. One gear in each hundred is crushed, to prove that the teeth will stand 50,000 pounds.

Steel is made to formula. Then it is analyzed. And every part made from it must pass tests for strength.

We do not know, and may never know, how long a Mitchell car will last. But we do know its comparative endurance.

TWO SIZES

Mitchell—a roomy, 7-passenger Six, with 127-inch wheelbase. A high-speed, economical, 48-horsepower motor. Disappearing extra seats and 31 extra features included.

Price \$1460, f. o. b. Racine.

Mitchell Junior—a 5-passenger Six on similar lines, with 120-inch wheelbase. A 40-horsepower motor— $\frac{1}{4}$ -inch smaller bore than larger Mitchell.

Price \$1150, f. o. b. Racine.

Also all styles of enclosed and convertible bodies. Also demountable tops.

And we know that parts where weakness generally shows seem all-enduring in Mitchells. For instance, springs. Bate cantilever springs, with this double strength, have been used two years in Mitchells. And not one leaf of one spring yet has broken.

Other Mitchell Extras

The Mitchell has now 31 extra features which nearly all cars omit. They are features which cost us, on this year's output, about \$4,000,000.

This year it has many added luxuries. We are saving vast sums in our new body plant. Out of that saving we have added 24 per cent to the cost of finish, upholstery and trimming. The latest Mitchells are models of luxury.

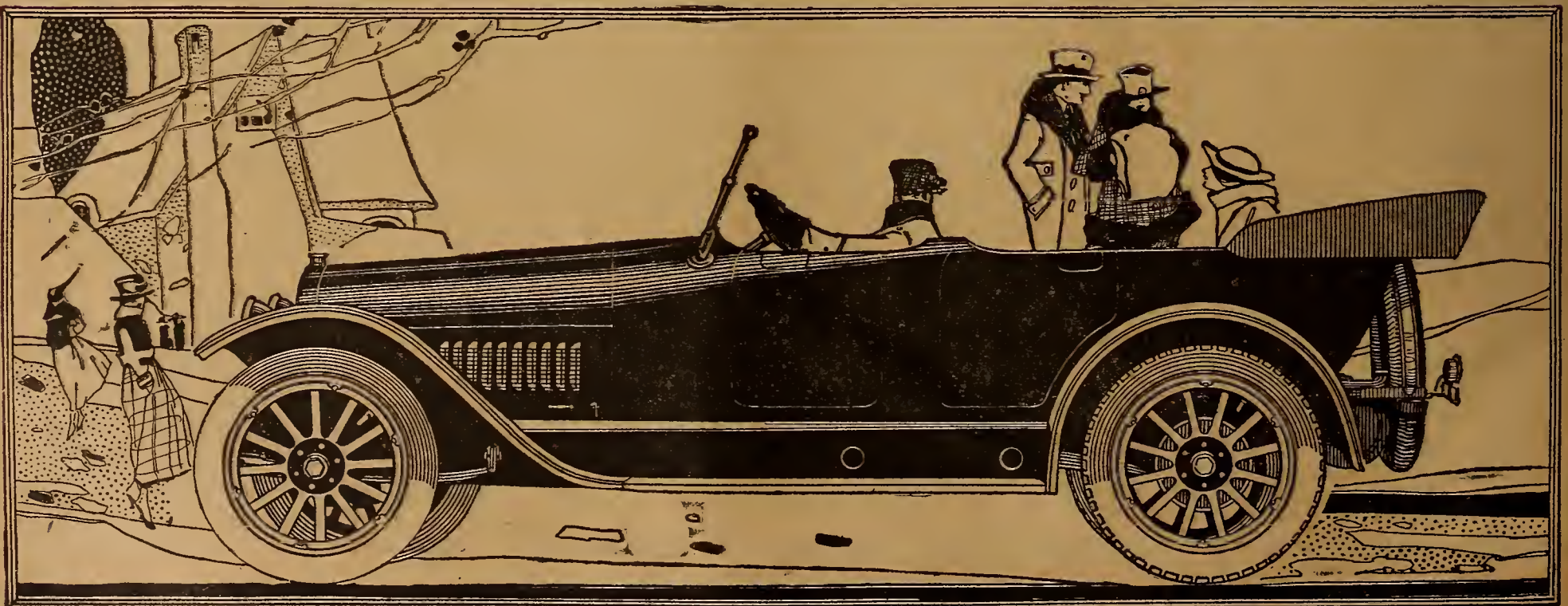
All these extras, including over-strength, are paid for by factory savings. They result from the fact that John W. Bate's methods have cut our factory costs in two. They represent, in extra value, what other methods waste.

Go see these extras. Learn what they mean to you. When you buy a car for years to come you will want the car that gives them.

Also An \$1150 Six

Note that this year—to meet a wide demand—we bring out Mitchell Junior. A slightly smaller motor—a little shorter car. And a lower price than the 7-passenger Mitchell. But more powerful and roomy than most 5-passenger cars. So men can get the Mitchell now in either size they want.

MITCHELL MOTORS COMPANY, Inc.
Racine, Wis., U. S. A.



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No. 11

Tillage Made Easier

Methods Which Help to Speed Up Early Spring Operations

By D. S. BURCH

AT A TENDER age I learned to use a walking plow. By the time my skill had advanced to the point where I could guide it through a maze of stumps and drive two cantankerous mules at the same time I considered myself somewhat of an expert.

Sulky plows I had been taught to regard as a luxury. The idea of doing a good job without personally guiding the plow with handles seemed preposterous, and there was a sentiment in our neighborhood that anyone who paid more than \$15 for any sort of plow was grossly extravagant.

A few years later, while visiting in a town having a fair-sized plow factory, I learned it was one of the sights visitors usually took in. So a friend who knew the manager of the factory arranged for our visit. The display-room contained more than 300 different kinds of plows. There was a special plow for every kind of soil. Many of the plows were of odd designs. These were for foreign countries. Some were designed for special conditions in Russia; others were for South America, and a few for Africa.

But most of the plows were for domestic use. The superintendent, who was our guide, explained the value of an index beam for orchard plowing; of the landing lever by means of which a sulky plow is adjustable to different widths of furrow and can be made to take the kinks out of any furrow. He showed us sulky plows without frames and without tongues and, most interesting of all to me, he had one of the experimental experts bring out an improved singletree which prevented the tugs from becoming unhooked accidentally.

Doing Away with Dead Furrows

IHAD seen disk plows in operation, but he showed us an ingenious reversible disk plow that would come back on the same furrow and plow the land all the same way, thus doing away with dead furrows and back furrows. In another department, plows were being adjusted. When I saw the experts working at special benches with their gauges and patterns I wondered how many plow users realized that clevis adjustment was a trifling matter compared with the proper suction and the curve of the moldboard.

Since that day I have many times verified a remark made by the superintendent. He claimed that good plowing depends first on the right selection of plow, second on the adjustment, and third on skill in handling. While this may seem a niggardly amount of consideration for the human element in plowing, the first two items, after all, depend on good judgment, so the plow owner really controls all three requirements.

If you describe your soil, saying whether it is clay, sand, or loam, normally wet or dry, whether sod or stubble and how deep you want to go, a modern plow company will suggest a number of styles any of which will do your work and do it well. For the general run of plowing on slightly different kinds of soil, I prefer a general-purpose moldboard to any of the highly specialized styles; that is, unless a man is able to invest in a special plow for every purpose. But whatever the kind of plow used, a study of adjustments will help any man to save his team. A rain that has softened the ground will affect the operation of a plow and require a different setting than when the ground is dry. Dull points and shares also make a difference as everyone knows. "If before really getting into my stride for the day's work," remarked an excellent farmer whom I know

EW



A small walking gang has the merit of light draft and the driver need not walk in the furrow

well, "I take a few moments after each round to get my plow in perfect adjustment, I can sometimes make it pull half a horse easier. In plowing stubble I want the furrow to turn just enough to fall over under its own weight, crumbling as it does so. I can see no merit in throwing the furrow over roughly. That requires more power and doesn't do as good work. In my loam soil I can plow a furrow nine inches deep with my 14-inch sulky plow and use only two horses, weighing about 1,300 pounds each. I can also do more work in a day by giving the team their heads and letting them take a rather rapid gait. Every team has a natural walk, and if you hold them down to a slower pace you are not giving them a chance to use their strength to best advantage. Give them freer rein, rest them when they need it, and see how much more you accomplish."

Another farmer who was getting along in years decided to invest in a sulky plow, though he doubted whether it would do as good work as his favorite

walking plow. But hot weather was approaching and he wanted to ride. After some deliberation he selected a style that would throw the plow out of the ground when it struck a rock, and this was his system:

He carried with him to the field a pick, a shovel, and a small crowbar. Whenever he struck a buried rock he would stop the team and with his tools he dug the rock out and rolled it over on the plowed ground. While this was hard work, the team was resting in the meantime, and when the team was working he had his rest. The plow turned a 16-inch furrow, and he used three medium-sized horses. When the field was finished this farmer found it had taken less time than usual, he was not so tired, and in addition the rocks which had bothered him for years were on top of the ground. When harrowing, he loaded the rocks on the harrow as he came to them and carried them to the stone pile. Thus, instead of making a special job of grubbing out the stones—one that he had long dreaded—he worked it in very easily with the plowing and harrowing, with scarcely any loss of time.

The demand for personal comfort in plowing has added considerably to the variety of sulky and gang plows. The owner of a sulky plow soon discovers that riding all of the time becomes as tedious and tiresome as walking. Consequently, a sulky plow must be able to stay in the ground and do good work whether the driver rides or walks. Hard ground is the supreme test for this requirement.

Improving the Gang Plows

RECENT improvements in sulky plows permit some of them to be turned at right angles at the end of a furrow, either to the right or left, as desired. Light-draft walking gang plows have a number of points to commend them. Whereas a certain make of riding gang that will cut three 14-inch furrows weighs about 1,085 pounds, the same make walking gang capable of doing the same work weighs only 780, nearly a third less. Of course, it has no frame or foot-lift device, but for the man who is willing to walk in order to save his team it does a wonderful lot of plowing in a day.

Some walking gang plows can be equipped with a seat so that the driver may rest himself if he wishes. A few horse-drawn gang plows are also convertible into engine plows by means of a special hitch and new levers that may be reached from the seat of the engine. On the larger plows the ability to back up is considered more important than formerly. Several new tractor gangs have a rear-wheel control that prevents casting while the plow is being backed. When turning corners the control automatically unlocks.

The matter of clearance is another problem which lately has received attention. High beams and plenty of room between the plows of a gang prevent ordinary clogging and reduce troublesome accumulation of surface trash. Light draft is a problem which all plow factories have worked on, but it is only a relative term. Every farmer cannot very well have a dynamometer to test the pull of his teams and the resistance of his plows, but a few simple cautions may save the team needless labor. Have the harness tugs of good length, and if hip straps are used see that they are long enough to prevent any draft of the plowing coming on them. Don't use wagon doubletrees for plowing; they are nearly always too long. For a two-horse plow team have the doubletree three times the width of [CONTINUED ON PAGE 13]



This unusual picture shows the ability of the modern sulky plow to bury completely a heavy weed growth. Notice how the furrow is being inverted

Dairy-Bred Heifers

How Best to Replenish the Herd with Profit Makers

By CHARLES L. HILL

WE ARE glad to introduce to FARM AND FIRESIDE readers Mr. Charles L. Hill, who as a breeder of national reputation is qualified to write on dairy matters. Mr. Hill's opinions carry much weight in dairy circles and in securing him as a contributor to FARM AND FIRESIDE we are sure he will be cordially received.—THE EDITOR.

WHEN the Dairy Editor asked me to say a few words to the 600,000 readers of FARM AND FIRESIDE, I considered that the question of dairy calves was as important as anything else to write about. I suppose that dairymen in other States as well as here in Wisconsin have lately been having trouble in buying good dairy heifers. They are hard to find even in the best dairy districts, unless one is willing to pay the high prices asked by breeders for choice pure-breds. But I am speaking of high-class grade heifers as well as pure-breds. Much less capital is needed to establish a herd of good quality grade stock since the principal requirement is to have the best cows in the herd bred to a pure-bred bull of any of the well-known dairy breeds.

At a certain Farmers' Institute an old farmer arose and asked the conductor if he might ask a question. Being given permission, he asked: "What kind of a calf would you raise to bring you the most profit?" The speaker began to tell the points of a calf that he thought might indicate that it would make a good cow, and then in the hope to bring out some additional information he turned to the farmer and asked him to answer his own question. The farmer said: "A heifer calf, of course." It will seldom pay in any high-class dairy herd to raise the bull calves for veal.

While they may at present prices for veal pay good returns for the milk they nurse from their dams, a cow will nearly always give more milk in the year if the calf is removed at once and the mother begins regular work in the dairy.

I take it for granted that the farmer to whom I am speaking has by testing his cows eliminated from his herd those that are not profitable, and if this is true I advise the raising of every heifer calf. Dairy-bred heifers are now very scarce and will at any age sell for much more than their cost of raising.

Neither the breeding nor form of a calf is going to tell us for sure which calf will be the best cow, so that if we wish to make the most rapid improvement we must raise more calves than we need and after one year's milking sell off the least profitable ones.

I take heifer calves from the dams within forty-eight hours of birth. I have the cow calve in a box stall, thoroughly disinfected just before the calf is born. It is quite important that the calf should have the first milk from its mother, as it is nature's laxative to cleanse the calf's bowels.

Ways to Solve Bedding Problems

THE principal reason for taking the calf away so early is because the cow will not become attached to it and worry when the calf is taken away. I like to have a small disinfected box stall for each calf. To be the most successful, this stall should be thoroughly cleaned each day. The floor is of cement, sprinkled each day with a disinfectant, and fresh bedding put in.

For bedding I like best a sprinkling of shavings on the floor, and straw on top of this. The shavings keep the stall drier than all straw, unless the straw has a good deal of chaff in it. Shavings alone make ideal bedding, but every once in a while there will be a calf which takes to eating the shavings, and this will kill it in a short time.

Most farms use straw alone, and it proves very satisfactory. If you change the bedding each day this straw need not be wasted, but can be used in the bull pen or in the gutters of the cow barn. The first few weeks of a calf's life is the tender age, and a calf well started is half-grown.

When you take the calf from its mother, put it out of sight and hearing of the mother, and let it go fifteen to eighteen hours before you try to feed it, as it will then be hungry enough to want food. It will pay for the first three or four weeks to feed it three times a day, using not over three pounds of new milk to a feed, and add enough hot water to bring the milk up to 100 degrees. With your fingers wet with milk coax the calf to put its nose into the milk in the pail.

Do not let the calf suck your fingers, but as soon as it gets started withdraw them from its mouth and hold them just over the nose. Continue the process till the calf drinks alone. Often the calf will learn the first time, and nearly always by the second or third feeding time. At this period of the calf's life it is very important that it be put in a small box stall by itself, or fastened up when fed its milk

so that it will not acquire the habit of sucking other calves' ears, teats, or navels. A little whole oats and bran mixed should be kept in a clean manger before it. It will learn to eat grain much earlier in life if a little of the mixture is put in its mouth right after it has had its milk, and while its mouth and nose are still wet.

In spite of all precautions a calf will sometimes have an attack of indigestion and start scouring without giving the least warning of such an attack. It will often refuse to drink at all, or only drink part of its mess of milk, and this in a half-hearted way. If any such symptoms are noticed, take away its milk and give it two or three tablespoonfuls of castor oil. Then, until you know the calf is all right again, give it only pure water to drink, at a temperature of 100 degrees Fahrenheit.

As a help to check the scours promptly, give a teaspoonful of a mixture of equal parts of salol and sub-nitrate of bismuth twice daily. This is placed in the calf's mouth in powder form. When the bowels are normal again, begin with a small milk ration and come back gradually to a full feed.

When a calf is not well, scald its milk for a few days. I do this by taking two pounds of milk right from the cow and adding to it three pounds of boiling water, letting it stand four or five minutes. I then cool it by setting this pail in cold water, and when the temperature is down to 100 degrees I feed it.

Remedies for Common Ailments

VIGILANCE is the price of success, and the most difficult time to raise a calf is from January to March, when the stables are shut up close and all animals are getting less exercise. Under these conditions bacteria of all kinds increase and hamper our dairy operations. The calf born in September and October is the easiest to raise, and, other things being equal, this is the best time, anyway, to have the cows freshen.

Lice and mange or ringworm will also bother most in the late winter. For the former dust the calf with some prepared lice powder or, if in warm weather, give it a bath with some coal-tar disinfectant, repeating in two weeks to get the second hatch of nits.

Mange, ringworm, or barn itch, as some call it, is harder to handle. The best thing I have tried is daily applications of a salve made by stirring sulphur into vaseline till it is a thick paste. I am convinced that lice and these skin diseases bother calves much less when they have some succulent feed like silage or roots.

Keep the choicest hay available always within reach. Hay made of June grass or second-crop clover is the best for this purpose. Alfalfa hay fed to very young calves is apt to keep their bowels too loose.

At two to four weeks old change gradually from new milk to skim milk, fed if possible direct from the cream separator while still warm with the animal heat. Scrupulous cleanliness of stalls, mangers, and feed pails is the price of success in calf-raising.

Increase the calf's ration of bran and oats up to the time when it will eat three or four pounds a day. Until the calf is eight or ten months old the whole oats are better for them than ground, but as soon as they begin to pass through the calf's stomach whole, feed them ground.

Feed the calf skim milk as long as it can be spared, even up to two years old. In any case, feed it milk at least twice a day up to the time it can be turned to grass late the next spring.

Even if turned to grass, continue the grain ration, and if milk is fed, the calf will make wonderful growth, but in this case keep the calf fastened up in stanchions or tied with a halter until the mouth and nose are dry, so it will not suck its companions. Small amounts of corn silage will be good for the calf at all times.

Breed a heifer to calve at twenty-four to twenty-eight months of age. It will do no harm for her to begin to lay on fat after five or six months in calf. Thus, by the time she is ready to calve she will be fat enough for beef; or, if she is dairy-bred and reared, she will soon turn this body fat into milk and butterfat with profit to her owner. Let her give milk a full year the first milking period, calving the second time fourteen to fifteen months after the first time, and thus help to establish the habit of persistent milking. If she is a spring-born heifer, let her drop her first calf in May or June and her second in September or October of the following year, thus giving her a long milking period and at the same time making a fall cow of her.

Prepared Calf Feeds

By E. H. NEWMAN

LIVING as we do in a dairy locality in Wisconsin where desirable young cows command high prices, and even then are hard to get, we raise our own. The best ones we keep for improving the herd; the others we sell. When a heifer calf is born we take it from the mother immediately and teach it to drink, giving it first of all the colostrum milk. After that fresh new milk is freely given. This regulates the digestive system, which is very important.

If the calf drinks too fast I give only a small amount at a time until it is two weeks old. Sometimes I feed five and six times a day. At all times, but especially when the calf is young, cleanliness is of utmost importance. The calf's pail is scalded after each feeding, and plenty of fresh bedding is used so the calf does not get dirty when it lies down. By following these precautions we have always been able to raise strong and healthy stock.

When calves are two weeks old they are ready for a new ration. Skim milk and commercial calf feeds are the rations we have found most successful, considering both results and economy. The commercial calf feed is a complete ration in itself, and we have no mixing to do. Our calves weigh 25 to 50 pounds more at the end of six months than we were formerly able to get them to weigh with other feeds. But if we have plenty of skim milk, as we do at certain times of the year, we use it instead of the calf meal. For the second two weeks of a calf's life we give the calf a mixture of half skim milk and half whole milk. We do not take the foam off. Each calf at this age is fed three times a day, and receives at each feeding two quarts of the half-and-half milk mixture, to which has been added two tablespoonfuls of scalded oil meal.

As the calves grow older this ration is gradually increased, but we watch them carefully to avoid scouring the animals by overfeeding. We never feed more than three quarts of milk at a feeding, but after the third week keep clover hay and ground oats constantly before them. This they learn to eat very soon. As the milk condenseries in our locality have been paying 50 cents a hundred pounds for skim milk, it is rather an expensive calf feed. In fact, we consider that skim milk fed to pigs and chickens gives better returns than as a calf feed.

That is the principal reason we use calf meal most of the time. The youngsters take to it readily if properly prepared, and it gives them a sleek appearance. We first put the proper amount of calf meal in two quarts of boiling water and then add enough cold water to bring it to the correct temperature—98 degrees Fahrenheit. If the meal is stirred constantly as it is added to the water, there will be no lumps.

Do not use any more water than is actually necessary for the calf to drink. You will be surprised how easy it is to control the kidneys with the amount of water you use with the food. Of course, the calves should have pure drinking water in addition. We keep it before them at all times.

Our calf meal costs us \$3.25 a hundred pounds, and the calves, until six months old, eat on an average of a quarter pound a day. This brings the cost for meal to less than a cent a day per calf. But, as in the case of feeding skim milk, we keep ground oats and hay before them too. Though to some it may appear over particular, we screen our ground oats so as to get all the husks out. The calves seem to relish them more this way. Some of our calves have weighed 125 pounds when four weeks old on this ration.

We plan to have our cows freshen in the fall, so we can raise the calves in the winter time.

By so doing we can devote more attention to details, there are no flies to worry them, and by the time they are six months old the calves can be pastured. Our calves are all tied and haltered, and when it comes time to turn them loose in the spring they lead without any trouble. This they will seldom do if allowed to run loose or if kept in stanchions.

E W



Good dairy heifers are now scarce and will at any age sell for much more than the cost of raising



When the plow strikes a rock, the wooden break pin provided for that purpose gives way. The driver then backs the plow out, puts in a new pin, and proceeds



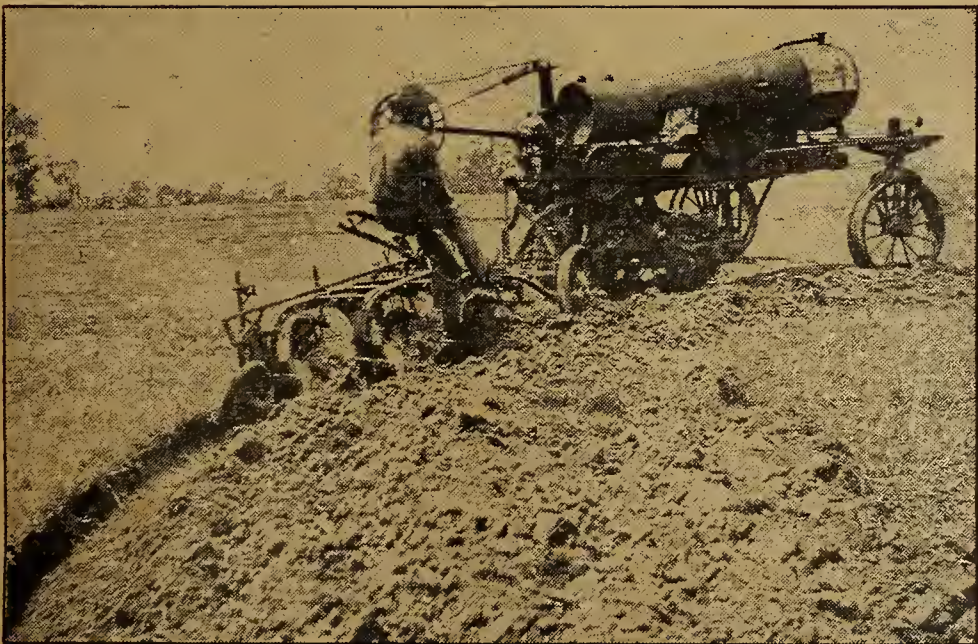
Here is the same outfit (as at the left) finishing the furrow. Notice at the furrow break where the rock lies how quickly the two shares entered the ground again

How to Handle Tractor Plows

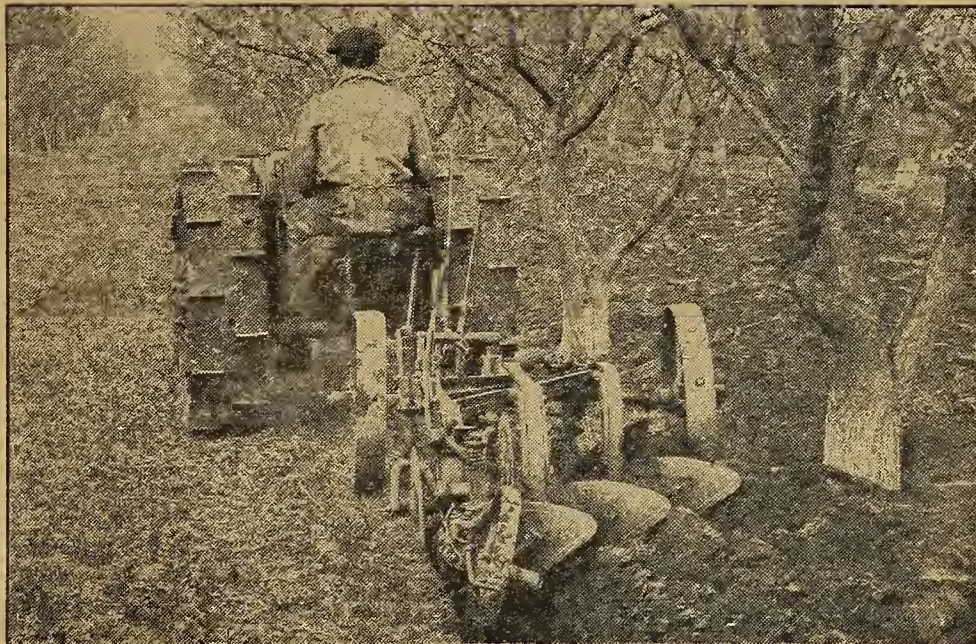


THIS tractor outfit is opening a furrow 24 inches wide by 12 inches deep through underbrush that contains many small trees. The plow is a single-bottom grub breaker, very strongly built, and will cut off roots and stumps that would stop the ordinary breaking plow. This method of reclaiming wild land is rapid and reasonably economical, for two men can do the work, and if the tractor has plenty of power, delays are infrequent. The vegetable matter turned under enriches the soil, making land very fertile

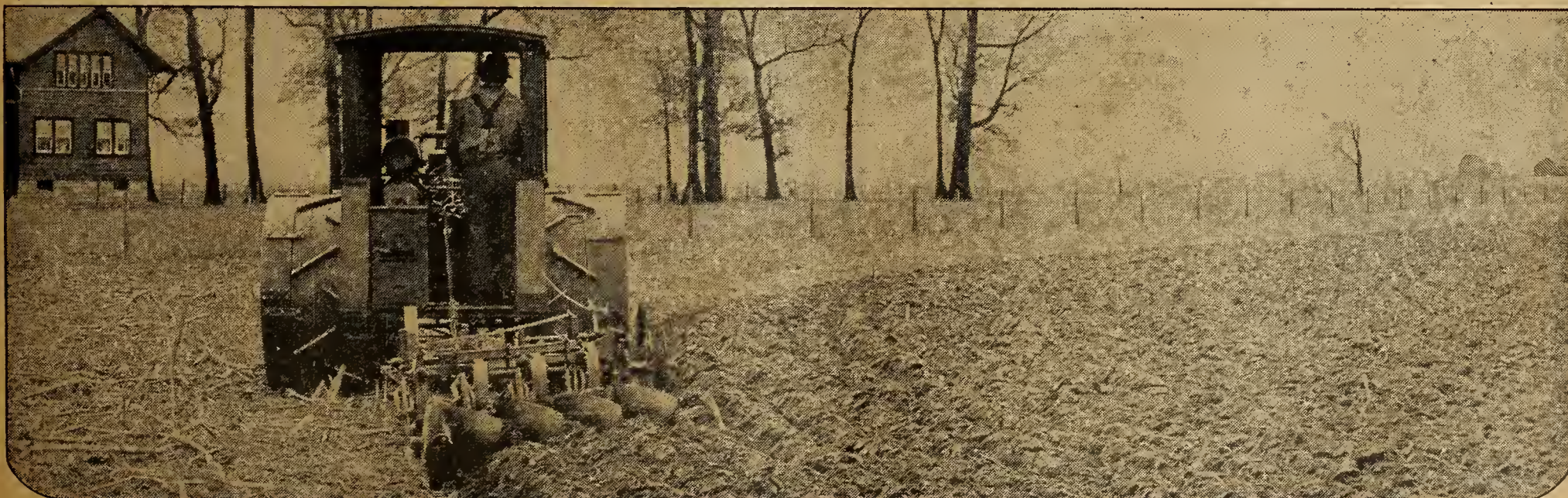
SHOWING a good way to start plowing a rectangular field. He started near the other end of the field and came down to the stopping point you see, and then back-furrowed. This is the first half of the second time around. Finally he will plow out the headlands. While the method is similar to that used by many who plow with horses, the straightness of the furrows is especially noteworthy. For in tractor plowing, the power is steady and more completely under control than is possible with horseflesh



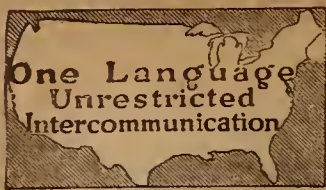
The extension steering column enables the driver of this three-bottom outfit to ride on the plow, just as if he were driving a team. But he neither carries a whip nor need he rest every few rounds, for this is the age of motor power



Here is a small tractor and plow outfit working in a California prune orchard. Although the trees are low-headed, the tractor is able to go under them and the plow stirs the soil to within a few feet of the trunks



This picture gives a good idea of the kind of a turn you can make with a four-bottom plow without taking it out of the ground. Notice also how well the plows cover the loose cornstalks. On a smooth field like this, one man can run the outfit, without working very hard either, and two men would be a luxury. The ground was soft at the time this picture was taken, hence the extension rims, which you will see are bolted to the drive wheels of the tractor



Europe's many tongues and consequent misunderstandings

The Fruits of Understanding

Throughout the vast area of this country prevails a common tongue. The whole of Europe hardly exceeds our territory, yet Europe has more than a score of nationalities and many different languages.

In the United States the telephone, as exemplified by Bell System, renders a matchless service in its mastery of distance and in encouraging the use of a universal language. This accomplishment is in spite of the great influx of population from every country in the world.

In Europe the independent countries, separated by barriers of language, and lacking effi-

cient telephone service, suffer from inadequate facilities for inter-communication.

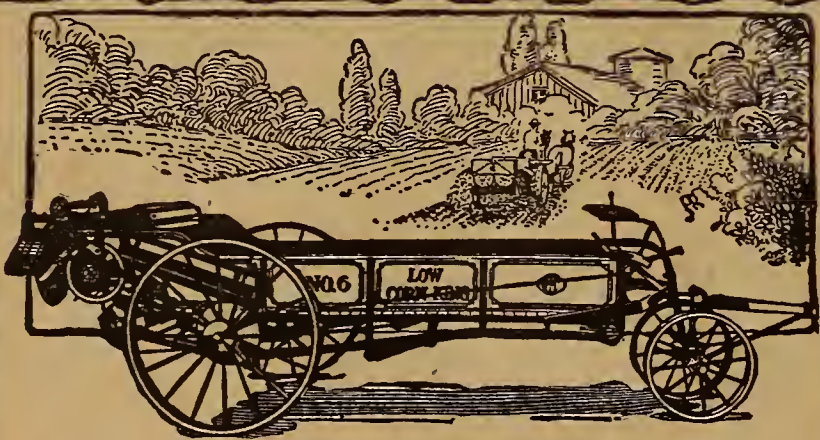
We now talk from the Atlantic Coast to the Pacific, and eliminate more than three thousand miles. In Europe, contending with a babel of voices and unrelated telephone systems, a bare quarter of that distance has been bridged with difficulty.

The ideal of the Bell System has been day by day to extend its service in the interest of all telephone users. Its efforts have resulted in providing the facilities to unite cities and rural districts in true American democracy.



AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

One Policy One System Universal Service



Settle the Spreader Question

THE farmer who uses a Low Cloverleaf, Low Corn King or Low 20th Century spreader these days is the man who makes the most money. His land increases in value when regularly fertilized. His crops grow better in quality and larger in yield when supplied with available plant food. Of all the spreaders on the market, the Low Cloverleaf, Low Corn King and Low 20th Century come nearest to doing this work as it should be done.

It is a long jump from the ordinary machine to the modern low spreader with its double beater and wide spread. Every farmer who knows the value of good spreading is buying one of these wide spread machines. As a matter of fact, no farmer can afford to buy any other kind, because the saving of time and labor and the better job of spreading done by a Low Cloverleaf, Low Corn King or Low 20th Century makes them worth more than ordinary spreaders.

Complete information about these machines is worth money to you. Drop us a line at the address below and we will show you very plainly why it will pay you to buy a Low Cloverleaf, Low Corn King or Low 20th Century spreader.

International Harvester Company of America

CHICAGO

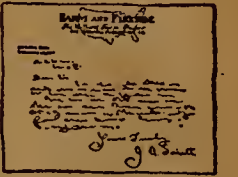
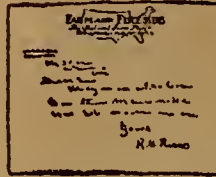
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U S A

Champion Deering McCormick Milwaukee Osborne Plano

The Editor's Letter

A Business Talk by an Unselfish Reader



A YEAR ago last September a reader wrote me a letter describing his farm and asking for help in handling certain problems. That letter is in a special file unanswered, waiting for him to send his name and post-office address. A notice was placed in the paper asking him to give this information, but I suppose when he received no answer to his letter within a reasonable time he quit reading FARM AND FIRESIDE, and so failed to see the notice.

The space occupied by the notice was worth about \$20 if figured at advertising rates, so I think you will agree we have tried to do the right thing in the matter. We were not to blame, because he didn't give his name and address; he was not to blame, since it was apparently an oversight, and yet the result is unpleasant. He failed to get the service that we have constantly offered to give; and FARM AND FIRESIDE has lost his good-will. And good-will is what we prize more than anything else.

A great many readers no doubt feel that they are on more or less friendly terms with the editor and circulation manager, who write them frequently, but the business department is "a law unto itself," which somehow or other can take the 50 cents for each subscription and can print and mail your copies.

A short time ago a young man asked for particulars about a certain automobile, and also asked for a list of what we considered the best machines "exclusive of those advertised in FARM AND FIRESIDE." He explained that he understood we would be prejudiced in favor of FARM AND FIRESIDE advertisers, but that by asking about other cars he would be able to get an unbiased opinion. Our automobile editor gave him the information desired, but also explained that, considering the enormous size of the automobile business, any remarks he might personally make would be scarcely a drop in the ocean in influencing the policy of any automobile company. The fact remains, however, that most of the best cars are advertised in FARM AND FIRESIDE at various times throughout the year.

But I am getting a little ahead of my story, for the kernel of what I want to say depends on the remarks of a good friend of FARM AND FIRESIDE who lives down in Texas. Nowadays, if a person does anything very unusual he gets into print, so when Mr. W. L. Moore took the time and trouble to write the letter you are about to read, and stamp it and send it without the hope of any return or even an answer, he unconsciously put himself in the limelight. If it seems to start off with too much sweet gush, don't get discouraged, but see it through.

"HELP the Farm Paper" he heads his remarks. "FARM AND FIRESIDE has a circulation of over 600,000 copies each issue, and I judge that at least half a million are actively engaged in some sort of agriculture. FARM AND FIRESIDE is working to help the farmer, in an up-to-date, practical way, to grow better crops and to market them more systematically.

"It encourages him to grow better live stock and better poultry. It prints good ideas that would take a lifetime for a man to secure if he tried to collect them himself. Now, when I say that in return each subscriber should secure one subscription for the paper, do not think this is an advertisement. It was not written by anyone connected with FARM AND FIRESIDE, nor was the writer asked to write it, nor does he expect to get one cent of pay for his efforts.

"It is a free-will offering, and if it helps the paper it will have performed its function. Make this your motto: 'Help those who help you.'—W. L. MOORE.

Don't put your hand on your pocket-books, my friends, and you will have to take my word that L. V. Rodda, the circulation man, does not know this is being published. I printed Mr. Moore's letter to give you an example of good-will, one of the most valuable and yet the most intangible qualities in modern business. We have been building up good-will for forty years, and it is worth

more to us than all our buildings, presses, and equipment. Pleased subscribers are more important than advertisers for this reason:

In order that any advertisement may pay, no matter how good the article offered, subscribers must read the paper. So with good-will in his heart, a friendly subscriber will thumb over the pages, watching for titles of articles that interest him, or it may be a picture or advertisement. No advertiser expects every reader, or even a tenth of the readers, to answer directly the ad. He is satisfied if the reader simply gives his advertising message consideration and remembers part of it so that in the future when the reader wants the particular article advertised he will know what brand to ask for and where to get it. In other words, the chief thing the advertiser hopes to get is good-will, because business experience shows that people eventually patronize concerns for which they have a friendly feeling.

IF THE advertisement is in a paper toward which he feels kindly, the advertisements in it are introduced to him, you might say, by a friend. That is about all there is to the whole matter. The editors try to deserve your friendship by helping you in your business and by entertaining you. The advertisers ask for your friendship because they know you will buy your necessities and luxuries from concerns you like, or which are well recommended to you.

Buying and selling in the past was accompanied by more or less dickering in which each tried to "trim" the other, if possible. But that is not a necessary part of business. Perhaps I can illustrate this by a little incident that took place in the office not long ago. A subscriber who lived about 20 miles out in the country came in to pay his subscription, and while he was here he consulted the Machinery Editor about some needed equipment for his farm. During the talk he remarked that he had written to some implement manufacturers but had received no reply.

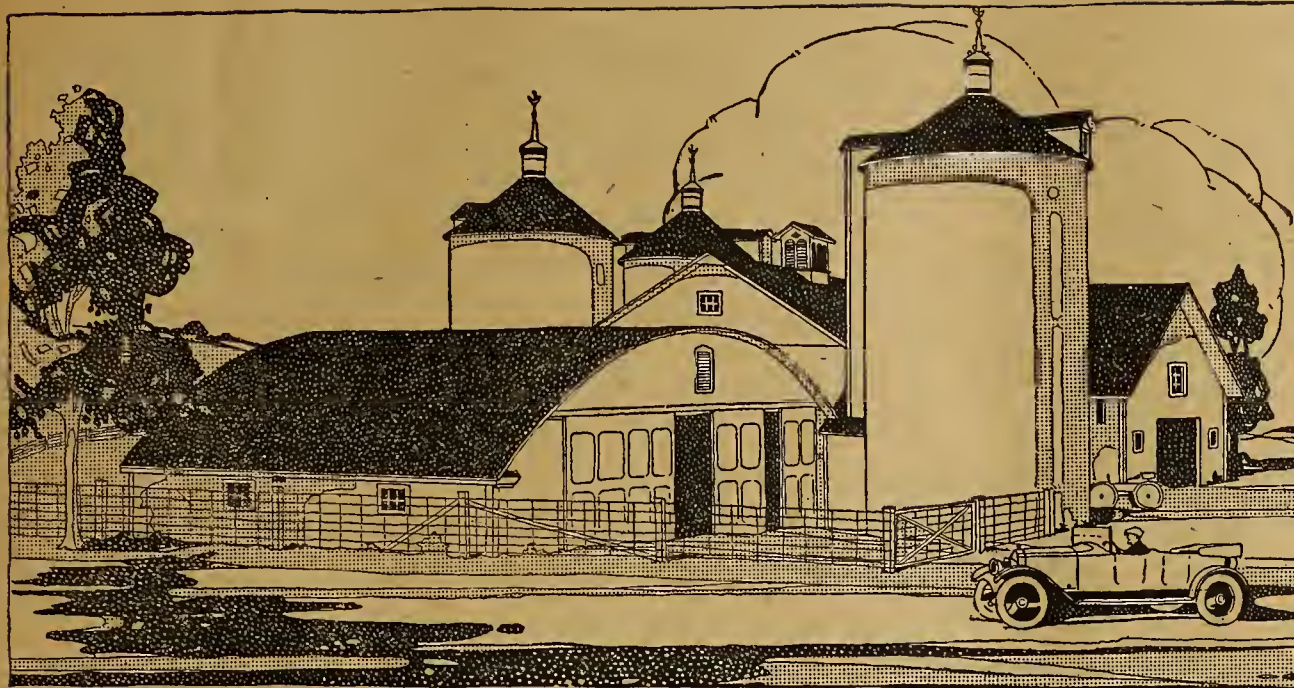
As a part of his job, the Machinery Editor dispatched a few letters to the concerns in question as soon as this subscriber left, and forgot the matter entirely until this letter came:

"DEAR SIR: Several months ago I had the pleasure of visiting you in your office. During the conversation I mentioned I had written to several manufacturers and had received no reply. A few days afterward you can imagine my surprise to receive letters from all those manufacturers, stating you had taken the matter up with them and they were sending their literature. Believe me, I certainly did and still appreciate your kindness. It makes FARM AND FIRESIDE seem, when it arrives, as an advice-giving, cheerful letter from a friend instead of just a farm journal. I bought a bean huller from one of the concerns. It certainly is a dandy and does elegant work. Thank you for your interest and favors."

That is my idea of how a business transaction should work out. But what is more important, we know we have the good-will of this subscriber, brought about by a most trifling service. Some subscribers we hear from often, and they frequently ask over a dozen questions at a time; others never write. I scarcely know what to say to induce them to write. Perhaps, as they keep reading the paper, which so many are now beginning to call dear old FARM AND FIRESIDE, they will in time catch the spirit that strangers can be their friends as well as home folks, and the crust of human nature is neither so thick nor hard to break as they thought.

The thought I want to leave with you is that business may be mutually helpful and friendly and that good-will, which, like personal friendship, cannot be purchased with money, may be secured in even exchange for its counterpart—good service, with a little humanity mixed in.

The Editor



Dairy Barns and Wooden Stave Silo, Spring Valley Farm, Dundee, Illinois



Better Tires for Average Roads

The boulevard is the tire-maker's paradise. Broad, ballasted, crowned for drainage and clear of obstruction—generous mileage and untroubled comfort over its smooth surface are simple attainments.

But the average road too often is his undoing. Varied in surface, speared with rock, scarred with ruts and choked with sand—it takes inevitable toll of the slightest tire fault or weakness.

We can not always ride on boulevards—too much of the work of the world is done in the open places reached by average roads; but we can build to the grim exactions of the average road, and be sure the boulevard will not find us wanting.

Goodyear has done just that—built its tires to the average road—built them strong and sound and lasting—safe and sure.

Goodyear Tires are thick of tread and large of girth. Goodyear Tires are powerful of structure and munificent of mileage. Goodyear Tires are generous of comfort and grudging of wear.

They serve, they satisfy, they endure—on any car, in any season, on any road.

It is not a month's task, or a year's, to build tires such as Goodyear builds. It is a

long, laborious process of experiment and effort, of test and try, of search and selection, ceaselessly carried on and conscientiously brought to success.

And the result of it all is the Goodyear Tire as you buy it today from your dealer—a better tire, built to the average road and able to serve well there, a tire unsurpassed in quality and brimming with value.

If you have not yet come to Goodyear Tires, you will. The trend of public preference is too pronounced, too positive, to admit of any other conclusion.

And when you do come to them, buy them of the Goodyear Service Station Dealer. There's one in your neighborhood, on the ground where you can meet him face to face.

He has in stock other things than Goodyear Tires—Goodyear Tubes and Goodyear Tire-Saver Kits, both of which embody the same high merit as the tires themselves.

He will be glad to serve you, and to help you, after the purchase, to get the final mile of service from Goodyear Tires. Which is service far beyond that you have commonly known.

The Goodyear Tire & Rubber Company
Akron, Ohio

GOODYEAR
AKRON

FARM and FIRESIDE

THE NATIONAL FARM PAPER

Harry M. Ziegler, Managing Editor

Associate Editors:

D. S. Burch B. F. W. Thorpe Ruth M. Boyle

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Farm and Fireside guarantees that its advertisers are responsible and honest people, and that its subscribers will receive fair and square treatment.

Advertising rates and regulations furnished upon request.

March 3, 1917

Legal Blow for Booze

IN DECIDING the Webb-Kenyon law to be constitutional, the U. S. Supreme Court has given the liquor interests a staggering blow from which they can scarcely hope to recover. Already prohibition forces are pressing their advantage and, with rather conclusive reasoning, are predicting a dry United States within the next ten years.

The Webb-Kenyon law, which for the last fourteen years has been violently assailed by the best legal talent of the "wets," provides that no liquor shall be shipped into a State in violation of the law of that State. This does not necessarily prevent shipments of liquor from "wet" States into so-called "dry" States except in a few cases. For there are many degrees of dryness varying from "bone dry," as in West Virginia, Arizona, and Oregon, to more or less dampness, as in most of the other "dry" States, also the District of Columbia, which permit specified amounts of liquor to be shipped in for private use.

What then is the strength of the Webb-Kenyon law? Simply this: It upholds the constitutionality of State prohibitory laws. It requires interstate commerce to obey these laws. And it assures those States which have postponed "dry" legislation because of legal uncertainties that they may now proceed to carry out the wishes of the people without having their laws disputed and trifled with by the liquor interests.

To Have Good Roads

EVERYBODY agrees that the surface of a road must be oval in its contour, but not all understand that this oval ought to be as flat as the character of the road material and the lay of the land will permit. With brick or concrete construction the oval may be very flat, because the traffic makes no ruts to carry the water lengthwise of the road, nor does the pavement soften and develop depressions when kept in contact with water. But broken stone (water-bound macadam), being susceptible to penetration by water, and subject to great damage if frozen while soaked, must be given a higher oval; and for gravel roads a still steeper pitch is demanded.

As for earth roads, the steepness must be governed by the combined influence of a number of factors. Perhaps the leading factor is the quality of the earth in each particular case. And next might be placed the presence or absence of "seeps" or "spouts"; while another of these vital factors would be the longitudinal pitch of the highway.

Although it is a seeming paradox to say it, yet it is true that the steeper the hill is the steeper must be the oval of the cross section.

One might reasonably suggest that

with these factors it is quite possible that the opinion of the local man, the man on the job, as to the height of the oval is more likely to be sound than the hastily formed conclusion of the casual observer.

There is a wide difference between a peaked road and a road with a high oval. A high oval is not necessarily peaked, while a very flat road may carry a nasty peak along its center. A peaked center in a flat road usually is a result of an illy built and poorly managed drag.

The earth-road problem in any State is an educational one. The people must know good drags, and how to use them.

Dad's Approval

IN THE successful management of boys and young men on the farm an expressed appreciation of duty well performed is a factor often overlooked.

Flattery is fatal. Unmerited praise is a sham quickly exploded, which in bright minds excites suspicion. On the other hand, frank, moderate commendation of earnest effort, which in justice deserves to be noticed, is welcomed by and is the due of every normal person.

Fathers often grow into the habit of fault-finding quite unconsciously when really they are only trying to teach better practice. Of course, mistakes hurt. And these mistakes must be pointed out in order that they may not be repeated. But it should be done with wisdom.

There are some farm fathers who after a few days absence from home always make a tour of the barns and fields in search of features they can praise. These points for praise are then brought to notice in the presence of the family circle, at the table, or around the evening lamp. Under such treatment the spirit of the boy whose good work is thus recognized glows. His heart warms toward his father, and also toward his praiseworthy activities.

In a day or so the mistakes, if there are such, may be brought up and kindly discussed and corrected privately, with much better effect on the boy and with far less danger of hurt feelings or of arousing a rebellious mood in his breast.

Healthy, full-fed, lusty farm boys are easier led than driven. Well-earned, tactfully delivered words of appreciation provide a potent leading string.

Food Shortage a Far Cry

ALL of this stress by the public press directed toward the future danger of food shortage is at present a false alarm. The city consumer realizes only the food in sight. If a number of food staples continue in scant supply for a season, he jumps to the conclusion that the producer has reached the limit of his producing power.

If the land seeded to wheat, beans, potatoes, and corn last year in this country and Canada had produced maximum instead of minimum crops, even the unusual foreign demand would have been taxed to find an outlet for these staple food crops. The farmer has advanced beyond the point where he is now unwilling to sow and reap beyond the needs of market requirements merely for the sake of overflowing his barns and warehouses. Like other manufacturers, the farmer now prefers to limit his crop acreage to meet the probable requirements of consumption in his selling zone.

When there is a staple demand for "two blades where one now grows," double production will be forthcoming—whenever there is profit in it for the producer. It is much too soon to get excited over a transient food shortage even though a combination of circumstances has put several food staples in the class of luxuries. From now on the real food manufacturer—the farmer—will rapidly come into his own. Occasional contraction in food supplies will help to clarify the industrial atmosphere and place our basic industry on its proper level.

Hope for the Renter

WE ARE to-day hearing much of "efficiency," of "farm management," and of similar terms. All this is well and may be productive of increased power, and perhaps of added purpose, on the part of the producer. It is proper, though, that the truth be kept constantly in mind, that no man, and least of all the farmer, can consistently be thought of as a mere machine.

Investigators, through their studies of farm practices in many States and under widely differing conditions, have made discoveries and established facts which should be of value to the great field of farming. They have pointed out the relation between profit and loss as influenced by the size of the farm, the relative investment in buildings, machinery, live stock and land, and the prevailing systems of farming.

Thus have state and national Governments done for the farmer what he could not afford to do for himself. We say this because the field of experimentation is for the Government rather than the individual, except perhaps for a limited number of men of independent means. Few farmers can afford to convert their farms into experiment stations. Furthermore, the findings on but one farm could not ordinarily be accepted as establishing the wisdom or folly of any system or practice. In all such investigations safety and assurance come only through numbers. Herein lies a danger.

In considering many men, in studying a large number of farms, there is a tendency to lose sight of the individual farmer and the unit farm. True, it could not be otherwise. Because there are more "average" men than signal successes or hopeless failures, it is the rule, rather than the exception, that must guide and direct.

The individual, though, must not be ignored. The "size" of the farmer is quite as important as the size of the farm. Despite the oft-repeated statement that the larger profits come from the larger farms, there are in the United States thousands of small farms that are paying handsome profits. Take, for instance, the case of Arnold Martin, the Swiss farmer who is becoming independent on a 20-acre Nebraska farm of much less than average fertility. There is need of recounting such successes in order to keep hope in the heart of the poor man ambitious to own a home, rather than always be a renter.

Our Letter Box

Economy in Canning Sausage

DEAR EDITOR: "Home-Canned Meats" in the November 4th issue of FARM AND FIRESIDE is certainly an article that many farmers' wives will file for future use. The canner will soon pay for itself in the farm home. Every farmer's wife cans sausage by some process, usually covering with grease. For the last ten years we have successfully canned our sausage in tin cans without any grease. This is economy, for the fat that covers sausage is not as good as the pure lard. The seasoning in the sausage gives the fat a flavor that is not palatable for pies, etc. But the fat that accumulates when frying the sausage can be used for any purpose for which lard is used.

Fry the sausage well done. This is the secret of keeping it by any process. Sterilize tin cans by standing on stove a few minutes filled with boiling water, empty and shake can a minute to expell all the water (but don't dry with a cloth, for the heat soon dries the can). Then pack with the hot sausage, and seal immediately. We often can by this method in oyster pails. Besides the economy of fat as has been shown, this saves time and labor, for when the sausage is opened there is no grease to be handled.

We can some sausage in the casings, but I think it is really better when made into cakes and fried. We fill new crocks (or if we have to use crocks that have been used for milk, we fill with lye and sterilize before using) a little more than half full of sausage and bake for

several hours in a slow oven. When cold, cover with lard; if every particle of sausage is not covered, tie over with a sheet of cotton. This will keep until spring.

Instead of eating all the sausage in the winter until we are tired of it, we can a quantity and use some side meat while it is fresh. We find hired men like side meat better fried down than when smoked or pickled. Fry slightly, as it will keep just as well, and fill jar that has been sterilized, weight the meat down, and when cold cover well with lard.

Some years ago we read an article by a noted cook saying it must be a very wasteful woman who would need to buy any fat except butter, cream, or olive oil. She explained that the drippings from meat if carefully saved would furnish all the grease needed. She did not consider the farmer's wife who has gallons and gallons of lard besides the drippings. We save every drop of grease when we boil meat. We let the liquid cool over night and skim the fat from the top, put it in the oven and cook the water out and use the same as lard. Many women never think of using meat fryings for pie crust, but when the meat is fresh it makes just as good pies, and the lard can be sold as a source of pin-money.

When the cracklings are fresh we grind a quantity in the food chopper and salt slightly and use them instead of grease to season potatoes, cabbage, hominy, etc. They are also excellent in corn bread or mush that is made to fry.

MARY C. BLUE, Ohio.

Buncoing Bean Growers

DEAR EDITOR: I have had about sixteen years' experience in bean-growing and bean-threshing in the central counties of the southern peninsula of Michigan, and believe I have become about as well acquainted with the culture, handling, and marketing of this important crop as anyone in this bean-growing center.

For some years I have been satisfied that the bean growers are being systematically fleeced by bean dealers and speculators, particularly during the past two or three years. The information has come to me that it is no uncommon thing for consumers to have to pay 16 cents a pound for dried beans, whereas the growers, all things considered, are making no more from their bean crop than when consumers were paying one half the present retail prices.

Farmers are now charged from 10 to 15 cents a pound for having their beans "picked" (removing the cull beans) after they have been threshed and cleaned. Three years ago dealers only charged farmers five and six cents a pound for picking, and now better improved machinery is used for this purpose, but still the price for picking is practically doubled and the dealer keeps the culled beans, which were formerly returned to the farmer. It is an open secret that the culled beans not returned to the farmer were made up into "baked pork and beans" until recently, when the pure-food authorities stopped in part this practice.

After the cull beans have been removed the growers often have but \$2 to \$3 a bushel left from the gross crop harvested. From this it will be seen that the raising of beans does not leave very much profit in the growers' hands, although the price seems exceptionally good.

G. A. RANDALL, Michigan.

A Sunshiny Letter

DEAR EDITOR: FARM AND FIRESIDE has been wonderfully interesting to me, for it has taught the things I love. I love the soil even though I cannot work in it, and I like to know how these things are managed and how other people have made good. The one thing dearest to my heart is "Home." I have called my home "Sunshine Cottage." Around it are a number of flowers I have earned by sending in subscriptions for FARM AND FIRESIDE. The blue rose that has attracted the attention of so many people is a favorite.

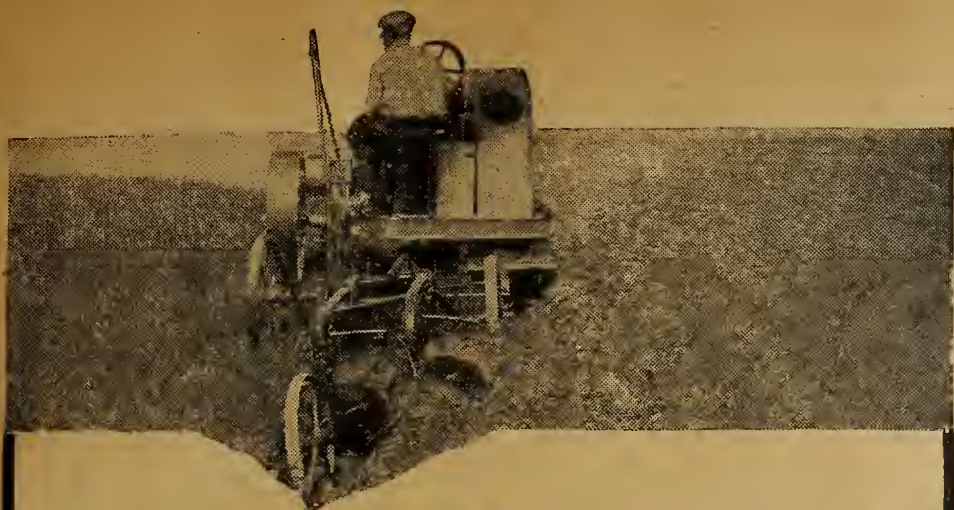
Some time I shall tell you more about "Sunshine Cottage," and how I have earned it. It may help some other woman to make good, as I am one of the afflicted classified as a "shut-in." Sometimes I think I have had almost as hard a time as Jim Irwin in "The Brown Mouse," but I'm not ready to give up yet.

MINNIE M. ELVEN, Indiana.

Wanted—A Fire Extinguisher

DEAR EDITOR: Your paper contained a good article on prevention of a fire, but the manufacturers of extinguishers seem to want it kept a secret. I have never noticed one of their advertisements. I take over twenty papers, too. I finally had to send to one of the mail-order houses to buy one.

F. BLAKE, Nebraska.



"The Bull" with the Bull

The Tractor That Does Things

Here's what a Big Bull Tractor did for J. H. Algard, Watertown, S. D.

Plowed 22½ acres in 26½ hours.

Hulled clover for 36 days at a total expense of \$7 per day, including hired help. Mr. Algard received \$50 a day, leaving him a net profit of \$43 a day or \$1548 in all.

Hauled a forty-inch separator, weighing 8000 lbs., 14 miles into the country and returned with another the same day.

Dragged 100 miles of road for which the County Road Commissioner paid Mr. Algard \$50.00.

Ran the whole season, doing many different kinds of work, without costing a penny for repairs.

Kerosene or Gasoline

You get, in the "Big Bull," a sturdy light-weight, self-steering tractor that delivers full 10 H. P. at the draw-bar and 20 H. P. at the belt, that is most economical in fuel and upkeep cost and is backed by a real service.

Don't wait till you "simply have to have" a "Big Bull." Order it Now. There is a distributor at your farm implement trade center.

FREE! Our new book on Subsoiling—relating the profitable crop-increasing experiences of several hundred Bull Tractor owners—or three months' subscription to the Monthly Tractor Bulletin. WHICH DO YOU WANT?

BULL TRACTOR COMPANY

2686 University Ave., S. E.

MINNEAPOLIS, MINN.

Hamilton Watch

"The Watch of Railroad Accuracy"



What do you use a watch for?

To tell time, isn't it? Not the wrong time, but the *right* time. Railroad men must have time that is correct to the fraction of a minute. Does it mean anything to you, then, when we tell you that the majority of railroad engineers and conductors in America carry Hamilton Watches? Isn't that proof that the Hamilton is the watch for you? You can buy a Hamilton movement alone to fit your present watch case for \$12.25 (\$13.00 in Canada) and up. Cased Hamiltons sell for \$25.00, \$28.00, \$32.50, \$40.00, and so on up to \$150.00 for the Hamilton Masterpiece in extra heavy 18k gold case. And all Hamilton Watches have accuracy and durability.

Write for Hamilton Watch Book "The Timekeeper"

Read the story of the Hamilton Watch and learn what things to look for in buying a watch. "The Timekeeper" pictures and describes all the various Hamilton Models.

HAMILTON WATCH COMPANY

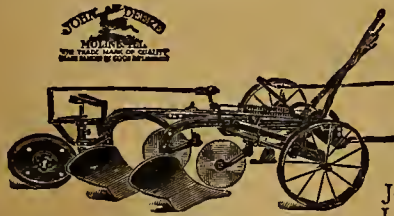
Dept. 48

Lancaster, Pennsylvania

JOHN DEERE

BETTER FARM IMPLEMENTS

IMPLEMENTS

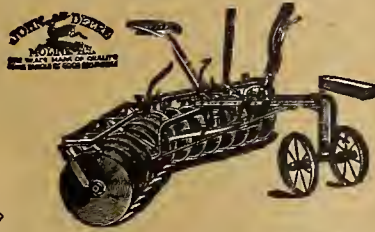


John Deere Plows for Light Tractors

High and Level Lift. Two, three and four bottoms. High and level lift means level plows out of the ground, no cutting of ridges when crossing or turning on plowed ground. Steady running furrow wheel—does not drag or bind against furrow wall. Stiff hitch—plow can be backed. John Deere bottoms, the standard for over 78 years. There is a John Deere bottom for every kind of soil. Equipped with John Deere Quick Detachable Shares—great labor and time savers.

So far as quality of John Deere Plows for Light Tractors is concerned they are built for the farmer who realizes that it is business judgment to buy a high-grade tractor plow. Don't forget that a tractor plow is not an everyday purchase. John Deere Plows for Light Tractors are noted for their high-grade work in the field—the real test of tractor plow value.

Before you make your purchase, be sure to see John Deere Plows for Light Tractors. A careful purchase means permanent saving.



John Deere Model "B" Disc Harrow

Using a disc harrow before plowing pulverizes surface lumps, works trash into the seed bed and prevents the escape of moisture. Then when the furrow slice is turned, the trash decays rapidly and no large air spaces are left between bottom of furrow and the turned furrow slice. Water in the subsoil can make its way into the seed bed and plant roots can penetrate to deeper soils.

The Model "B" pulverizes at even depth its entire width. Patented spring pressure third lever—inner ends of gangs can be given light or heavy pressure to disc over ridges or cut out dead furrows without burying the harrow.

Independent gangs. All tendency of gangs to crowd to one side is easily overcome by giving them the proper relative angle.

Flexible—only that part of the Model "B" harrow passing over an obstruction is lifted out of the ground.

Rear section can be furnished to make a double action harrow.



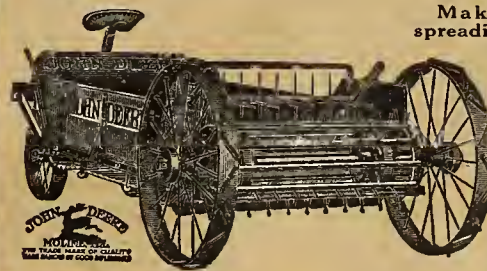
John Deere Spreader

The Spreader with the Beater on the Axle

Mounting the beater on the axle simplified the construction, eliminated troublesome parts and made possible a successful low-down spreader with big drive wheels. There are no shafts to get out of line, no chains to cause trouble, and no clutches to adjust. The only spreader with beater and beater drive mounted on axle.



Low down, with big drive wheels out of the way. Easy to load. Revolving rake, driven by manure moving toward the beater—no bunching of manure. Eal bearing eccentric apron drive—a new and exclusive driving device. Makes uniform spreading certain.



Widespread attachment for spreading seven feet wide can be furnished for the John Deere Spreader. No chains nor gears. Quickly removed.



To designate and brand their goods, "Deere & Company," use the "leaping deer" trade mark. It is the best known implement trade mark in the world.

The permanent prestige of John Deere implements has been maintained by the company's strict adherence to principles of manufacture that originally made the goods popular.

The "leaping deer" trade mark is Deere & Company's stamp of approval. It distinguishes John Deere Implements from inferior goods. It means that the implement was made in a John Deere factory, in the John Deere way. It is a guarantee of satisfaction and an insurance policy against disappointment.

Look for the John Deere trade mark when you buy.

BOOK FREE

156 page reference book—tells all about a complete line of farm implements and how to adjust and use many of them. A practical encyclopedia of farm implements. Worth dollars.

Describes and illustrates Plows for Tractors; Walking and Riding Plows; Disc Plows; Cultivators; Spring Tooth and Spike Tooth Harrows; Disc Harrows; Alfalfa and Beet Tools; Farm and Mountain Wagons; Manure Spreaders; Inside Cup and Portable Grain Elevators; Corn Shellers; Hay Loaders; Stackers; Rakes; Mowers and Side Delivery Rakes; Hay Presses; Kaffir Headers; Grain Drills; Seeders; Grain and Corn Binders.

This book will be sent free to everyone stating what implement he is interested in and asking for Package No. X-71.

JOHN DEERE - - MOLINE, ILLINOIS

SAXON "SIX"

A BIG TOURING CAR FOR FIVE PEOPLE



There Is a Strong Public Belief In the Superiority of Saxon "Six"

At last it has dawned upon motor-car buyers in general that, strictly speaking, there is no rivalry between a car of less than six cylinders and Saxon "Six."

With less than six cylinders propelling the car, there are bound to be slight intervals between explosions.

With six cylinders, as in Saxon "Six," these intervals between impulses are eliminated and the power-stream produced is of practically perfect continuity.

Necessarily, then, in the "less than six," with fewer impulses at any given time, the force of each impulse must be more severe upon all moving parts.

In Saxon "Six," for instance, as compared with one of the best known "less than six cylinder" cars of like price, there is nearly 98% more impulses per minute at 20 miles per hour.

And this super-smoothness of Saxon "Six" power-flow is clearly reflected in its abler performance.

In high-gear work, in pulling power, in flexibility, in acceleration, Saxon "Six" is matchless among cars of like price.

Saxon "Six" is \$865; "Six" Sedan, \$1250; "Four" Roadster, \$495; f. o. b. Detroit. Canadian prices: "Six" Touring Car, \$1175; "Six" Sedan, \$1675; "Four" Roadster, \$665. Price of special export models: "Six," \$915; "Four," \$495; f. o. b. Detroit.

(909)

SAXON MOTOR CAR CORPORATION, DETROIT

Human Efficiency

New Educational Act Will Increase Earnings

By JOHN SNURE



WASHINGTON, D. C.,
Feb. 19, 1917.

SOMETHING like nine years ago the late Senator J. P. Dolliver of Iowa introduced in the Senate a vocational education bill. The subject was new and legislation on it seemed remote at that time. Mr. Dolliver, however, saw visions, and he used to talk to his friends by the hour of the time when the long arm of the Government would reach out and take by the hand the untrained boys and girls of the land below college age and give them a training for some form of useful work.

Mr. Dolliver saw that the professions were overcrowded. He recalled the days of his experience when as a green lawyer in Fort Dodge, Iowa, he waited years in a bare office for clients. He perceived, too, what it would mean for agriculture and all the industries of the United States if the hosts of untrained young people of both sexes could be converted into trained and skilled workers. He died without seeing the legislation enacted, but it is due in no small part to his efforts that the Congress just closing has agreed on a bill.

Representative Dudley M. Hughes of Georgia, chairman of the House Committee on Education, considers it "the greatest preparedness measure which Congress has ever enacted."

The bill has been one of the big things of the session of Congress ending March 4th. It was passed by the Senate last summer and by the House in January. It is the greatest single piece of educational legislation the Federal Government has ever enacted. The next few years will tell whether it is to realize the expectations of its advocates. One powerful supporter of such training has been the American Federation of Labor. Various agricultural organizations have been back of it, also organizations of manufacturers.

What does the vocational education measure provide? It provides for the granting of money from the federal treasury to the States for stimulating vocational education in agriculture and in the trades, industries, and domestic arts. The bill uses the term "agricultural education." But this includes education for the farm home as well as for the farm itself.

The Government, starting with an appropriation of close to \$2,000,000, will before long be giving over \$7,000,000 every year to aid in vocational education. In the next ten years the Government will have given over \$50,000,000 for this purpose. Under the plan the money paid out by the Government is to be divided among the States. And for each dollar received from the Government the State is to spend an equal amount for the same purpose, besides meeting all cost of buildings, equipment, and maintenance. The money will also be used for training teachers of agricultural, industrial, and domestic subjects.

NONE but public schools are to be aided by the Government, and the instruction in them must be of less than college grade. This instruction, according to the bill as agreed on, is to be designed to prepare boys and girls over fourteen years for useful or profitable employment in agriculture, in the trades and industries, and in home economics. Day schools and evening schools are to be aided. A federal board is to administer the law and co-operate with the States in promoting vocational education and in furthering studies and investigations to aid the States.

This board is to consist of three members of the Cabinet, the Commissioner of Education of the United States, and three members appointed by the President. The Cabinet members are the Secretaries of Agriculture, of Commerce, and of Labor. One of the three members appointed by the President is to represent agricultural interests, one to represent manufacturing and commercial interests, and one to represent labor.

Just as there is to be a federal board to administer the law, so each State is to have a board provided by its legislature to co-operate and to look after the detailed work of training teachers and establishing and supporting schools according to the local needs.

"To fit for useful employment" is the underlying purpose of the whole plan. The Federal Government does not intend itself to enter the educational

field, but it will help the States. One can understand the possibilities of the legislation better by recalling that in educational matters, when the Federal Government gives its money to help the States, the States are disposed to give freely. They do not as a rule simply match their dollar with the dollar of Uncle Sam. They give more.

Imagine, too, what it means for America to have plentifully distributed through every State schools giving vocational training to boys and girls in farming, trade, industrial, and home-making pursuits. It means that there will soon be in existence in this country a vast army of trained workers able to earn their living with their hands, but not as mere drudges—they will be skilled. It is believed that under vocational training there will be no room and no toleration for the person ashamed of manual work.

OF THE value to the nation of a vast army of trained workers of both sexes, one can form some conception by thinking of the utter impossibility these days to get enough trained workers for the business of agriculture, for trades, for industries, and in the homes.

It will take some time to get teachers trained and to get the law in full working order, with the States co-operating harmoniously with the Federal Government. Judge Hughes, chairman of the House Committee on Education, predicts that by 1920 the law will be bringing results and turning out large numbers of trained young people.

Asked to sum up his views of the vocational education measure for FARM AND FIRESIDE, Judge Hughes said:

"I believe it the greatest conservation and preparedness bill yet enacted. To-day there is a tremendous wastage of youth in the United States. It is the hope of the men who have urged this legislation—and they have done it without regard to politics or partisanship—that this will result in conserving that wastage and in preparing the nation for the great part it must play in the world in an agricultural, industrial, mechanical, and domestic way. To use a single illustration: Think of what vocational training has done for Germany. It is not easy to starve out or to defeat a people whose hands do what their brains command. In the entire United States there are fewer trade schools than are to be found in the little German kingdom of Bavaria, with a population not much greater than that of New York City. Practically every German citizen who could profit by it may receive vocational training for his life work in the schools and classes supported out of the public treasury.

"Of the 14,250,000 persons in this country engaged in mechanical and manufacturing pursuits, not one per cent have had or at the present time have any chance to secure adequate industrial training.

"We are among the world's great industrial peoples, and the immediate problem of vocational education is the problem of equipping for the successful pursuit of some useful occupation the youths who go to work at the rate of more than 1,000,000 a year. If we assume that a system of vocational education pursued through twenty-five years of the past would have increased the wage-earning capacity of each of these to the extent of 10 cents a day this would have made an increase of wages for the group of \$2,500,000 a day, or \$750,000,000 a year. This is a very moderate estimate, and the facts would probably show a difference in the earning power of the vocationally trained and the untrained of 25 cents a day. This would indicate a waste of wages through lack of training amounting to \$6,250,000 every day, or \$1,875,000,000 for the year.

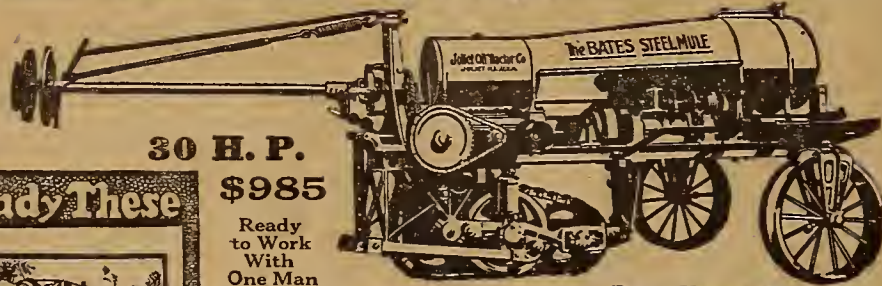
"I have high hopes for vocational training legislation. It is the most ambitious plan for educational advance in training for the farm, the factory, the mine, the railroad, the home—for all industry."

W

Save One Man With

The Bates Steel Mule

FULLY COVERED BY PATENTS



30 H. P.

\$985

Ready to Work With One Man

Burns Kerosene

One man and the Bates Steel Mule will do more work every day than most tractors and two men. Let that fact sink in—it means money to you.

When operating, you sit on your implement and drive the Bates Steel Mule as easily as you would a horse. Everything is in front—no looking around or carrying an extra man at \$2 a day.

Plowing, Discing, Spreading, Drilling, Cultivating, Mowing, Harvesting—no matter what the job—the "Mule" is a real one man tractor.

Has Crawler Drive Instead of Wheel

Because of this feature, the "Mule" works on any soil, wet or dry, without packing the ground. You can use it in weather when other tractors are idle and get about one-third more days work per year.

If you want a machine that will do more than you ever thought possible, then look up the Bates Steel Mule. It will open your eyes to the fact that you cannot afford to overlook the "Mule." Backed by a strong, broad guarantee. Thousands in successful use.

Write today for facts and pictures of what the Bates Steel Mule will do for you.

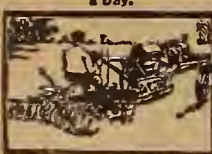
Joliet Oil Tractor Co.
19 Benton Street Joliet, Illinois



One Man Plows 10 Acres a Day.



One Man Harvests 40 Acres a Day.



One Man Discs 35 Acres a Day.



One Man Drills 50 Acres a Day.



One Man Cultivates 31 Acres a Day.



Automobiles

Another Car Runs Cheaply

By H. C. McCormick

THE article entitled "Auto on Small Income" in a recent issue leads me to tell of a little experience of my own, still less expensive than that related. I bought a machine a year ago last November, and on December 2d drove it to a neighboring town, a distance of 14 miles, through mud and slush nearly up to the hub a good part of the way. When we arrived, every wheel was a solid block of ice and ice was frozen on the under side of the machine five or six inches thick.

However, the car made the trip without trouble of any kind, and after we cleaned it there was no sign of any injury. Last spring was the muddiest season our section has known for years, so that for weeks we had to run through mud and in deep ruts. I have run something over 2,000 miles and, including a chauffeur's license, which cost \$5, my total expense has been less than \$50, including gasoline, oil, sundries, and a few repairs consisting of two lamp bulbs and four fuses. I have had three punctures, caused by a tack and two nails.

My car never has run into anything. The nearest to an accident I have come was one time when a neighbor came around the corner one way just as I was coming the other way. We stopped within about six inches of each other. I have never tinkered with parts of the machine that I knew nothing about. At three different times I had trouble in starting, but instead of trying to tinker it myself I sent for the salesman who sold it to me, who immediately came to my assistance free of charge. We had it going all right in a few minutes each time, and nothing has gone wrong lately that I could not easily remedy myself. Since last September, when I took out a chauffeur's license, I have taken in enough to cover all running expenses for an entire season.

Getting Auto in Trim

By B. H. Wike

WHEN the auto emerges from its winter quarters to begin its season of work, several things are important before activities begin. First, supply new grease and oil over the entire apparatus. Open every oil hole completely so that the lubricant will flow where needed and not be retarded or obstructed on account of some trick the cold weather has done in gumming up the holes.

Few owners take out all the old greases and oils in the fall, which is the best course, but when neglected this should be done in the spring. Little particles of metal are constantly dropping into the lubricant, caused by friction of the parts, and one season's accumulation of these is enough.

Tires should be pumped up to full pressure. All tire valves must be watched to see that they perform their functions, and if they fail, put new

ones in at once. Sometimes these little valve rubbers, especially when allowed to stand over a period of two or three months without use, will stick to their seats by rust. Also the pump leathers on the pump plungers are apt to be dry and incapable of creating any pressure in the barrels. Softening these leathers with a light oil sometimes helps, but more often they should be replaced with new ones. It is no small matter to be caught upon the road with a bad-working pump that fails when needed most.

Open the radiator drain cock and pour water in the filler hole until the drainings come from it clean and clear. This will insure a good, unobstructed circulation when the auto goes into use.

Be sure the storage battery is in the best condition possible before putting it back into the car. Watch especially for leaks or any internal troubles like "shorts" or broken plates or bad separators.

Some attention ought to be given to the car's finish, such as the body and bright parts. Treat these as the circumstances demand. If the paint is very old renew with fresh coats well put on and allow to dry thoroughly. If it be new and still glossy, it needs only a good wash with clean water and afterward wiped dry with a damp chamois. Then wax it and polish.

Keep Windshield Clean

By W. V. Relma

WHEN driving in the rain, snow, or fog it is very essential that the windshield should be kept clean. There are several devices upon the market with a rubber surface which can be slipped along the windshield and will remove the water or snow.

There are preparations that can be obtained at all accessory stores which can be applied to the windshield and prevent the water or snow from sticking to the glass. A little kink that is interesting to know was shown me by a taxi driver. It is to rub the finger from the top of the windshield glass to the bottom in the way a window cleaner is used on store windows. It will be necessary to pull the finger downward a good many times and to make the cleaned surfaces join. This makes a very effective water resistant. I used it recently in a dense fog and it helped greatly.

Tires and Bad Roads

A WISCONSIN reader says that the tires on his car are old, and while he can expect at least a thousand more miles of ultimate service from each of them, they are likely to blow out most any time. He asks whether he had better use his old tires as long as they will last or equip the machine with new ones. The roads are rough and in spring are very hard on tires.

From the standpoint of comfort and freedom from tire trouble, the wisest course would be to get new tires, preferably oversize tires. But if economy is a factor in the decision, it would be better to use the old tires, repairing them when necessary and start out with new tires in the spring, after the roads are good. By using reliners at about \$2 each inside the casings to strengthen them, he would perhaps double the service still left in the old tires and use the reliners later on in the other weak tires.

For severe road conditions oversize tires give much better service, and are usually the most economical to buy. They have greater carrying capacity, greater elasticity and, being larger than standard tire equipment, ride better over soft places and through gravel and sand.



This car is equipped with oversize tires, which are always half an inch wider and an inch greater in diameter than standard equipment

Superior

"The Name Tells a True Story"



Superior Drills will do your work the way it should be done, no matter where you are located or what your seeding conditions may be.

Superior Drills save time, seed, labor, repair bills, and are noted for Even Sowing, Light Draft, Simplicity, Ease of Operation, Great Strength, Choice Materials and Workmanship.

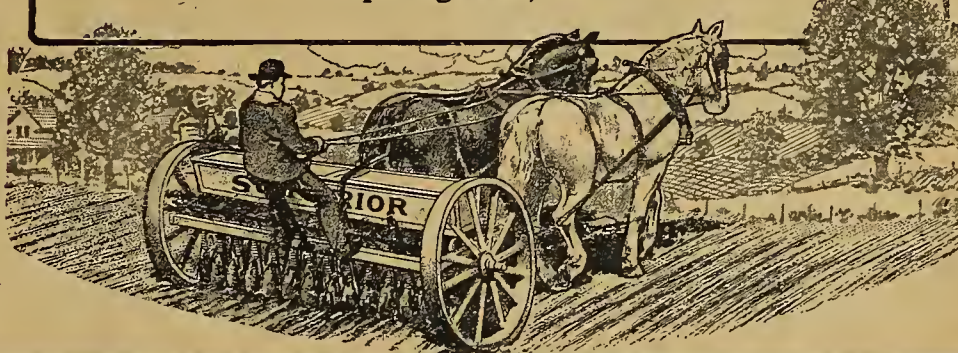
Every Superior Drill is Warranted to be and do all claimed for it

Made in all sizes and styles for sowing large and small grains, with or without fertilizer, in 4, 6, 7 and 8 inch rows.

Send for the Superior Catalog. Note the Warranty. Then go to your Dealer, and insist on seeing the SUPERIOR. Remember a "Crop well sown is half grown."

Are you considering sowing your wheat and other small grains in 4 inch rows instead of 6, 7 or 8 inch? Ask your Implement Dealer for information on the Superior 4 inch Grain Drill or write us for descriptive pamphlet.

The American Seeding-Machine Co., Inc.
Springfield, Ohio



"—But You Can Make \$50 Weekly!"



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We have pointed out this opportunity to dozens of young men and young women. Again and again we find that it has guided them out of their difficulties. Again and again we receive intensely human letters thanking us for the assistance our work has been.

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Coupon

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Please tell me how I can make \$50 weekly by acting as special agent for FARM AND FIRESIDE.

NameSt. or R. D.

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\$750 Buys the Waterloo Boy Kerosene Tractor

PULLS THREE 14-IN. PLOWS
BELT POWER FOR 17-IN. SILAGE
CUTTER OR 24-IN. THRESHER

One Speed

2874 Built and Sold in 1916
Standardized Tractor

It is a perfected machine—offered to the farmers only after years of designing, building, rebuilding and exhaustive testing. Not an "assembled" machine, but built in our own factory. Carries the stamp of Waterloo Boy quality and supremacy in every ounce of material and every detail of construction.

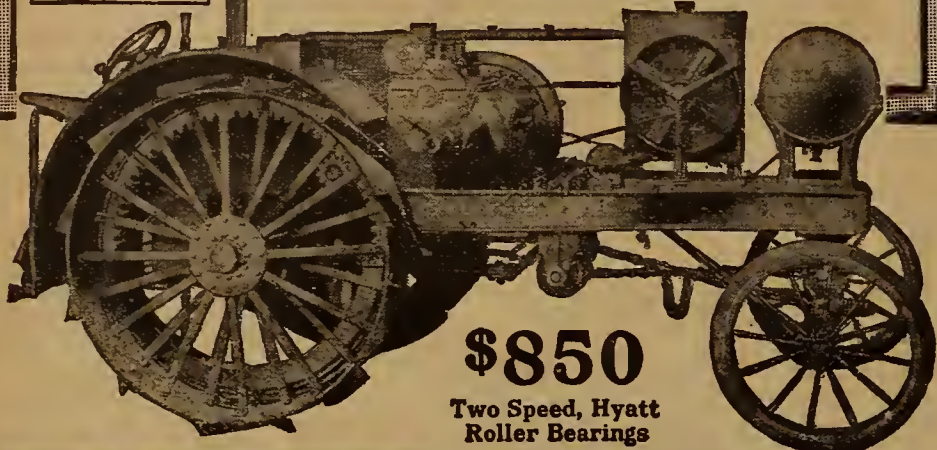
Our patent kerosene burner insures lowest possible fuel expense. Easy accessibility of all working parts saves time and trouble. Easy and perfect control with quick change of speed is one of the distinctive features of this tractor. Light weight enables it to work in soft ground.

We have distributing stations at all important points where prompt service can be had.

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Waterloo Gasoline Engine Co., 4303 W. 3rd Ave., Waterloo, Iowa.



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Two Speed, Hyatt Roller Bearings

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We save you money on your Seed Bill. Write for our Special Money-Saving Price List and get our reduced prices on Best Quality Guaranteed Seed. You should know about our low prices. Write at once and be convinced. Everything sold Guaranteed Satisfactory or money refunded. Don't pay two profits on Grass Seed. Our seeds are sold subject to Government test. Have new re-cleaned Alfalfa, \$6.90 bu.; Timothy, \$2.25; Clover, \$3.40; Sweet Clover, \$3.90; Alsike and Timothy, \$4.00. Have low prices on Seed Corn, Oats, Wheat, Speltz, Barley, Cane, Millet, Cowpeas, Rape, Vetch, Sudan Grass, Potatoes, Artichokes and all Farm and Garden Seeds. Write today for big 100-page catalog. Free samples and special low prices on seeds you require. Will send Free 60-page book on Growing Alfalfa to those who ask for it. Write at once, as we can save you money. A. A. BERRY SEED CO., BOX 242, CLARINDA, IOWA

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APOLLO-KEYSTONE Sheets are the most satisfactory, rust-resistant sheets obtainable for Roofing, Siding, Culverts, Tanks, Silos, Cisterns and all exposed sheet metal work. Look for the Keystone added below regular Apollo brand—it indicates that Keystone Copper Steel is used. Demand the genuine—accept no substitute. Sold by weight by leading dealers. Our free booklet "Better Buildings" contains building plans and valuable information. Send for copy today.
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Low in first cost—low in upkeep. Highest quality construction on simple, common sense lines. Only 1/2 the parts used in other tractors. Model "A" 8-16 H. P. Light Weight Tractor pulls 2 or 3 plows according to soil conditions. Burns gasoline or kerosene. Made a great 1916 record.

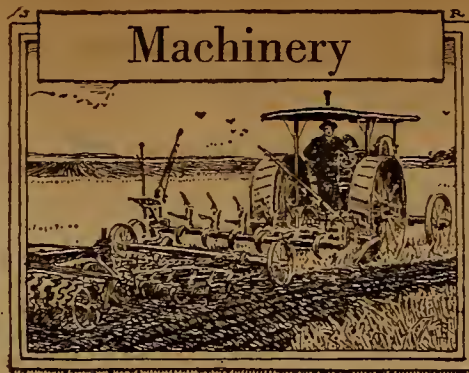
Model "B" our wonderful kerosene burner. The highest development in a light, all-purpose farm tractor and only \$735.00, f.o.b. factory, La Crosse, Wis. Guaranteed drawbar pull 2000 pounds, or three 14-inch plows. Hyatt Roller Bearings throughout. Handles any belt work. Weighs only 3700 pounds. We have a distributor near you for prompt service. Write for Catalog.

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Machinery

Engine on Water Tank

By J. L. Justice

OWING to the scarcity and high cost of labor a near-by thresherman mounted a small gasoline engine on his water tank and was thereby enabled to do without a water hauler, which he formerly had to hire. There was always a man idle at some time who could haul the tank to a well or a creek. All that he had to do was to drop the hose into the water, crank the engine, and in a few minutes the tank was pumped full. On many farms water is difficult to get in a hurry if it must be pumped by hand.

The engine was a light 1½-horsepower one that he used on his farm for pumping water. It was mounted near the center of the tank, and geared direct to a light pump jack. The regular tank pump was used, and because of the horizontal stroke the pump jack was set horizontally also. At first the jack was geared too high and put too great a strain on the pump, but when geared down to about 60 strokes a minute it operated the pump at about the right speed. When the threshing outfit was put away for the season the engine and jack were removed and put to work on the farm again to pump water for stock. It is a very simple arrangement and represents a great saving in wages and time.

An Electric Problem

A WISCONSIN reader asks about the practicability of windmill generators for supplying electricity.

Thus far no thoroughly successful equipment for wind-power outfits has been developed, although a number of concerns make generators that may be driven with windmill power.

The problem of windmill generators is complicated by the varying speeds of the mill, which make it difficult to design an outfit that operates properly without frequent attention. Consequently the control equipment must be of a highly developed construction, which is necessarily expensive.

The power which can be obtained from an ordinary wind is limited. An ordinary 10-foot windmill working in a 15-mile wind delivers only enough power to supply electricity for about ten 20-watt tungsten lamps. This would be insufficient for small power needs such as the average farm requires. Gas engine outfits have been the most satisfactory, since they may be depended on to turn the dynamo at the proper speed for as long a time as may be desired. Windmills are important sources of farm power for pumping water, but the power is not in a form that can be easily converted into usable electric current.

Quick Returns from Manure

GETTING the greatest fertilizing value from a limited amount of manure is a problem worth attention during these times of good prices. From a business standpoint, many fairly productive acres are more profitable than a

small field that gives a record-breaking yield.

An Ohio experiment has shown that the best results from manure are secured when it is applied with a manure spreader at the rate of six loads to the acre. This does not mean that the yield will be as great as though 12 tons had been applied, but rather that it covers more acres, and the total yield is more than from any other method of distribution.

The ideal method of applying the manure is in a finely pulverized form so that the soil may quickly absorb its fertilizing elements. An Indiana test indicates that five tons of manure spread by machine will give about 20 per cent greater yields of corn, oats, or clover than if the same amount is spread by hand. The difference is due to the more lumpy distribution when spread by hand.

While heavy manuring is advised when manure is plentiful, the most practical method, therefore, of using small quantities is to spread it thinly by machine over many acres and get bigger crops while prices are high.

Fence Posts Compared

THE fence-post problem is always with us. In view of the growing scarcity of desirable woods, the Government suggests the use of substitutes for wood posts such as concrete, stone, or metal posts, or else treating the shorter-lived posts with preserving materials. Here is the government list of the different woods and materials, together with the average life and cost:

Kind of post	Average life (years)	Average cost (cents)
Concrete (estimated).....	48.0	30
Stone	36.3	35
Steel (estimated)	29.9	30
Osage orange	29.9	22
Locust	23.8	24
Red cedar	20.5	29
Mulberry	17.4	19
Catalpa	15.5	17
Bur oak	15.3	15
Chestnut	14.8	15
White cedar	14.3	18
Walnut	11.5	13
White oak	11.4	12
Pine	11.2	13
Tamarack	10.5	9
Cherry	10.3	8
Hemlock	9.1	12
Sassafras	8.9	14
Elm	8.8	12
Ash	8.6	10
Red oak	7.0	7
Willow	6.2	7

A good time to cut wood posts that are to be peeled is in the spring after buds begin to swell. They peel easily at that time, and will season in time for the preserving treatment in the fall.

WHEN the bobsled or sleigh is not in use, keep the runners off the ground. It will be in better running condition when needed.

Breaks Flint Boulders

By Jeffrey Barker

IT IS very difficult to break hard blue flint rock by sledging. Recently I tried some dynamite on one of them that was four feet wide, eight feet long, and about eight inches thick. It lay almost wholly exposed on the surface of the ground.

With a soil auger I bored a hole under the center of the rock in which I loaded a charge consisting of half a stick of 40 per cent dynamite to which had been previously attached a No. 6 blasting cap and length of fuse. This method of loading is called snake-holing.

This little charge, which cost less than 10 cents, broke the rock into pieces that I could handle very easily.



To secure the best returns from a limited amount of manure, apply it lightly (about six tons to the acre) over as many acres as possible

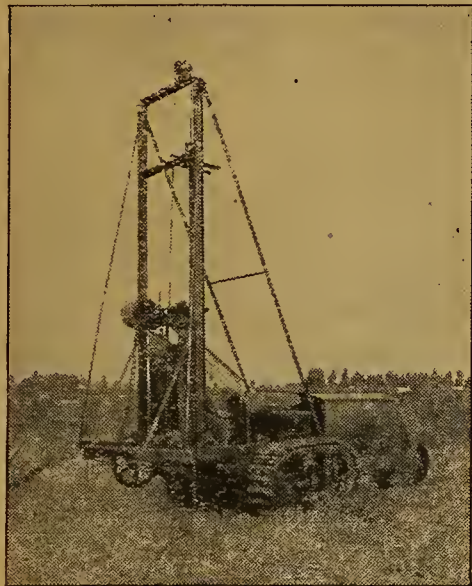
Machine Digs Tree Holes

By A. L. Dahl

A NEW and novel use for the tractor has recently been discovered by a California man. The president of a company in Fresno County owning 7,000 acres of land discovered that the soil was especially adapted to the growing of Smyrna figs. He therefore decided to plant the area to the new money-making crop, and the stock of every nursery in the State was bought out.

There were enough trees to plant 2,000 acres at once, and the problem of digging 100,000 holes for these trees confronted the promoters. But this was solved by equipping a tractor with a derrick and drilling outfit the power for which was furnished by the tractor motor. One man operates the machine and does all the drilling.

The tractor is run into position on a straight line across the field to be drilled, and the drill lowered and operated by a single lever. When the drill has penetrated through the hardpan



The tractor motor operates the drill which makes the holes

which underlies the entire area, a stream of water is run into the hole to clear it, and then the tractor moves on to the new drill site and repeats the performance.

Following in the wake of the drill is a man who lowers a pound of powder into the hole and sets it off. The hardpan is broken into bits, through which the roots of the trees can reach for water, and the most difficult part of the planting is done.

PROVIDE a solid base for engines, cream separators, grinding mills, and all fast-running machinery. Insecure fastening causes excessive wear on the bearings, and poor performance.

LIGHTEN the draft of the disk harrow by sharpening the disks. Weighting a dull disk harrow to make it penetrate the ground is as hard on the team as cutting wood with a dull ax is for you.

You can stop a squeak in a piece of machinery with a little grease or oil. But if you ignore the squeak the dry bearing will in time wear, then wobble, and finally cause repairs and a great deal of delay.

Tillage Made Easier

[CONTINUED FROM PAGE 3]

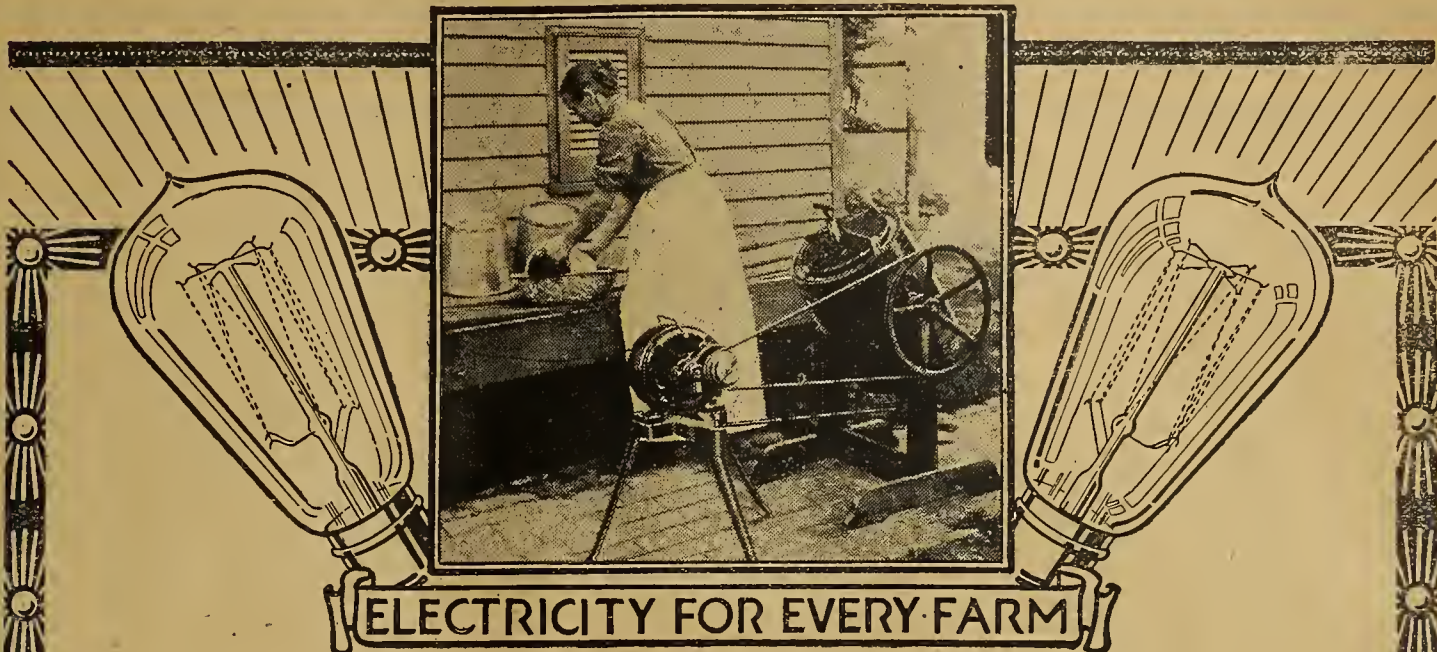
the furrow. If you are turning a 12-inch furrow use a 36-inch doubletree. In a similar way a 14-inch furrow necessitates a 42-inch doubletree if you want to do good work and have light draft. When plowing hillsides use a ring or link of chain between the clevises to prevent twisting of the plow.

Watch the moldboard and see if all portions of it are scouring uniformly. A number of plows are now made with provision for using different kinds of moldboards and shares. The frog and other points of construction are the same.

Thus at a very small expense you have the practical equivalent of several different plows. One style of plow may be equipped with ten different bottoms. In sulky plows, light draft is governed largely by high wheels, wide tires, large bearings, and a direct hitch. A so-called rolling landside is also claimed to reduce draft considerably. This is simply a rear wheel with a smooth polished side that scours.

EDITOR'S NOTE: The Machinery Editor of FARM AND FIRESIDE will assist readers in any plow problems they may have. Please state your problem as definitely as possible, giving description of soil and size of teams. Your questions will be answered by personal letter.

DELCO-LIGHT



ELECTRICITY FOR EVERY FARM

All In The Day's Work

Delco-Light actually pays for itself in time and labor saved in doing the household chores.

Here is a sample day's work for Delco-Light, on the farm of A. L. Denlinger, near Engelwood, Ohio.

—"ground 150 lbs. of sausage meat—churned 90 lbs. of cream—turned the washing machine and wringer for large family wash—separated 25 gallons of milk. And after all of this work, my wife had plenty of time to bake bread. During the evening, some of the neighbors drove in and we had a pleasant time under Delco-Light."

Delco-Light betters living conditions on the farm. It furnishes an abundance of clean, economical, safe light for house and outbuildings. It makes possible a modern bath and running water in various parts of the house, and it furnishes power for small farm machines.

Delco-Light is a complete electric power plant—wonderfully compact, economical and efficient—and so simple that a child can care for it.

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President
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Big Reduction in Land Clearing Costs

The recent land clearing tests conducted by the University of Wisconsin have revolutionized methods and established conclusively much lower clearing costs per acre.

These tests covered the use of stump pullers and farm powder separately and in combination.

The leading kinds of stump pullers—hand and power—were represented. The dynamite used was



Red Cross Farm Powder

These tests proved the following important facts:

1st—The cheaper Red Cross Farm Powders will in most soils blast out stumps as well as the more expensive 30% and 40% grades.

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3rd—Properly placed charges fired with a blasting machine greatly reduce the amount, strength and cost of the dynamite required.

4th—Present high cost of dynamite is more than offset by the improved methods developed by the University's Demonstration.

As a result the average farmer can now clear his stump covered land at less cost per acre than before the war.

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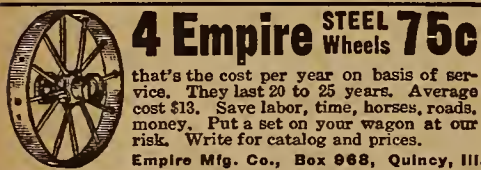
Every farmer with stump covered land should know the full facts about this modern method of land clearing. Write to-day for

Land Clearing Bulletin No. 90

If you are interested in orchard planting, ditching, drainage, boulder blasting, subsoiling or post hole blasting be sure to ask for

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For an even three-quarters of a century we have met the demand, and today we operate the largest and oldest permanently established plow factory in the whole world. "It's the way we build them."



Light Draft Plows, Harrows, Planters and Cultivators are made in all types and sizes, to meet the conditions in all sections, and are Backed by an Unqualified Guarantee.

We also make the most complete line of Tractor Engine Plows produced, and we have a special catalog devoted to these famous plows.

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was the most popular plow shown at all points on the 1916 National Tractor Demonstration.

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What We Are Doing for Our Readers

JUST as you are better farmers and housewives year by year, and learn more about your land, your live stock, your orchards, your crops, your home, poultry, and dairy, so we have been learning year by year more what you want in FARM AND FIRESIDE.

In addition to supplying you and your family with news and information in regard to the business of farming, FARM AND FIRESIDE has always held it to be a part of its mission to supply your family with a proper amount of mental recreation. Good, clean stories, well-conducted household departments, fancy work, patterns, millinery styles, puzzles and games for the children, and an occasional fine sermon.

FARM AND FIRESIDE has always been on the alert to do its share in the big movements for bettering farm life. FARM AND FIRESIDE was one of the first and strongest advocates for rural delivery. In the face of much opposition, FARM AND FIRESIDE later fought a successful fight for parcel post. For several years FARM AND FIRESIDE has been advocating and discussing an adequate system of rural credits. It became such an authority on rural credits that Herbert Quick, formerly editor of FARM AND FIRESIDE, was made a member of the Federal Farm Loan Board by President Wilson. All the practical and modern farm practices and ideas have long been familiar to FARM AND FIRESIDE readers.

FARM AND FIRESIDE was one of the first farm papers to adopt a high advertising standard, which includes the elimination of questionable advertising of all kinds and a guarantee to its subscribers of fair and square treatment in their dealing with the advertisers. Of course, such a policy has paid. A high standard of reading matter and a high standard of advertising cannot fail to win, and to-day FARM AND FIRESIDE stands as a fine expression not only of the firm that publishes it, but of the best type of American farmer who reads it.

FARM AND FIRESIDE has won an enviable reputation for having good cover pictures and well-printed and interesting illustrations. This standard will be maintained.

EVERY issue of FARM AND FIRESIDE contains four pages of timely, well-illustrated, interesting, and readable feature articles; an Editor's Letter; a Washington Letter, which will keep you well informed about what is really going on at the nation's capital; an editorial page with interesting discussions of timely subjects, and a letter box giving several letters written by subscribers; departments filled with helpful articles on automobiles, machinery, live stock, dairy, garden and orchard, crops and soils, and poultry; an illustrated story; a department of stories for the children; puzzles; a Fontaine Fox cartoon; a health department conducted by Dr. Spahr; departments of fancy work; patterns; Housewife's Club, cooking, household hints, needlework, recipes; and Sunday Reading.

The many pictures in FARM AND FIRESIDE are not designed simply to make the paper pretty, but to illustrate the points in the reading matter. Pictures place interesting facts more vividly before the mind than whole pages of written description without pictures. You and your family are practical people—you want to see a thing. The pictures in FARM AND FIRESIDE, the best and clearest that can be made, enable you to see it.

We have a large number of great special articles that will appear in FARM AND FIRESIDE during the remaining months of 1917. There are too many to publish the list in full, but here are a few of them:

"That Girl of Mine" and "That Boy of Mine," by Beatrice Brace, are two excellent articles dealing with the very

difficult "boy and girl on the farm" problem. It is only when we lay aside our added years and go back to our own boyhood or girlhood days that we can enter into our boys' or girls' real feelings or into their inner beings. To be able to teach and guide a child well, we must have the spirit of the child. Our boys and girls are the most precious possessions we have, and it pays to put our best into the human product.

"Making the Most Out of Alfalfa," by E. R. Adams. Many growers of alfalfa used to market their entire output in the form of hay. Rain changed this plan. Feeding the poorer grades of alfalfa hay and the threshed alfalfa hay to live stock has increased their profits.

"FINISHING Western Lambs," by Andrew M. Paterson. Three hundred and ten lambs were bought on the Denver market. They were shipped to Manhattan, Kansas, and fed out. The profits from the lambs, when sold on the Kansas City market, varied from \$1.60 to \$1.79 a head. Another excellent sheep article is, "Handling Sheep on Farms," by Joseph A. Rickart.

"The Jointer-Colter," by D. S. Burch. Unlike many agricultural inventions, the combined colter and jointer does not make any of our present plows and tillage implements obsolete, but it is merely an aid in improving the quality of their work. The chief usefulness of the jointer-colter promises, at this time, to be reduction in weed growth in grains, grasses, cultivated crops, and fallow land, and as an improved means of controlling pests that can be destroyed by plowing under the adult insects and their eggs.

"Handling Boy Help," by R. E. Rogers. This article gives Mr. Rogers' experience, and tells how he met the problem of boy help.

"Making a Small Farm Pay," by Fred L. Holmes. Individual initiative is the mainspring in making a small farm pay. This is the opinion of F. F. Showers of Wisconsin, from an actual trial on 40 acres. The story instilled such inspiration that it is told in a little booklet sent out to their customers by more than one hundred Wisconsin banks. For twenty-three years Mr. Showers was a school teacher, then he bought a farm and went to work. He has made his little farm a big success.

"Controlling Foul Brood Among Bees," by Oscar Kazmeier. Foul brood is doing its greatest damage with small farm beekeepers. Once the disease gets a hold, it spreads so rapidly that a small apiary may be wiped out. Mr. Kazmeier tells you how to save your bees.

Other big features are: "Testing Dairy Breeds," "Farming with Twenty Inches of Rain," "Blackleg Serum," "Improvement in Farm Machinery," "Dairy Cows on \$500-an-Acre Land," "Running Water for \$50," "The Motor Car," "The Gasoline Engine," "Farming with Tractors," "Home Improvements," and "Lighting the Farm."

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EDITOR FARM AND FIRESIDE,
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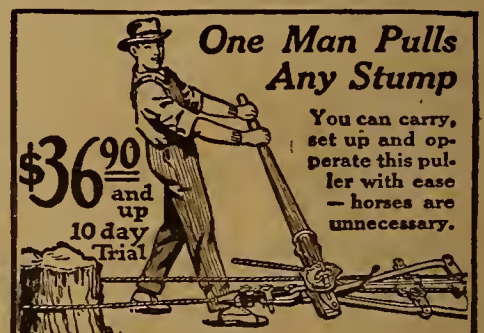
The Life of Chilean Nitrate Deposits A. D. 1917

Total Nitrate deposits in Chile	720 million tons
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Estimated life of deposits at present rate of World's consumption	300 years
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War on Pests

When Spray Gun's Away Crop Enemies Play

By B. F. W. THORPE



This power blow gun is distributing poison and fungicides. Many more trees can be covered in a day than with liquid spray, but dormant scale pests are unharmed

THE perpetual warfare against the enemies to our crops has come to be a nerve-wearing encounter at best, but honest, now, would you be willing to go back to Grandfather's day to escape such warfare? True, our grandfathers had a taste of trouble with crop pests, but they were merely in the skirmish line. Now there is necessity for an annual "drive" to rout the insect foes and minute but mighty disease germs before our crops are overwhelmed.

Recently the discussions at a big horticultural meeting convinced me in common with many others that our crop pests are at present the balance wheel which prevents serious overproduction during those years when conditions are especially favorable for bumper crops. The necessity of controlling crop enemies puts into the hands of the most alert, progressive farmers the reward that otherwise might be lost through overproduction. Now that the successful growing of crops requires an investment in spray equipment for crop protection, the growers will see to it that plant food, proper preparation of soil, and right culture are not lacking. In a word, the necessity of furnishing protection from crop pests assures better farming.

The Home of Grape Juice

In this matter of spraying machinery and protective spray solutions, I have tried to keep fairly up with the procession, but the extraordinary demand for means of destroying pests is so stimulative to inventors and manufacturers of sprayers and spray material few are able to judge just what the best equipment now is. As a matter of fact, the growers of fruit and other crops most needing protection have insisted on demonstrations to an extent that has made it necessary that all such equipment must make good or fall by the wayside.

The surprising growth in the practice of spraying was brought home to me last spring during a visit to the grape-growing region of Ohio, New York, and Pennsylvania. This grape belt, bordering Lake Erie, has an area of some 35,

000 acres of grape vineyards. I talked with scores of grape growers, and circulated among the apple, peach, small-fruit, potato, and commercial truck centers in different sections of Pennsylvania and New York.

Here are the words of a successful grape grower near Westfield, New York: "I now find systematic spraying with suitable spraying machinery an annual necessity to insure full crops of salable grapes. We now consider the spraying just as important as pruning our vines and cultivating and fertilizing our land. Some of the old vineyards were not suitably set out to spray conveniently with modern spraying equipment. This adds to the expense of spraying and prevents a first-class job. Now we plan for efficient spraying when setting out vineyards, small fruits, and truck crops."

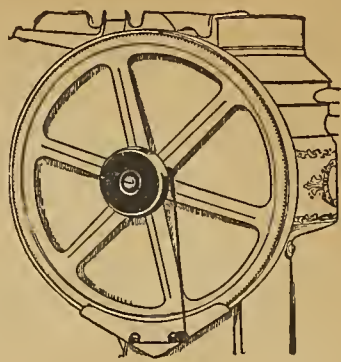
Increase Crop Value \$10 a Ton

The same point was brought to my attention by the manager of a big grape-juice factory. His conversation can be summed up thus: "The fruit of unsprayed vineyards can no longer be accepted either for the basket trade in table grapes or for making grape juice. As a rule, spraying adds \$10 a ton to the value of the grape crop, and on farms where 40 acres of grapes are properly sprayed the grower may expect from \$500 to \$800 additional income over what would be received for the same crop unprotected by spraying. Grape growers supply themselves with spray machinery and spray material just as regularly as with fertilizer, and machinery for cultivation."

I visited vineyards on several farms where grape-growing was carried on as a side line and spraying was not regularly practiced. On such farms there was no need of comment. The vineyards told their own story. Even where pruning, culture, and fertilizing had not been neglected, diseased foliage, insect-eaten leaves and falling grape berries left no room for hope of a profitable crop. Not over a half-dozen years ago this grape industry of the Lake Erie grape belt was threatened with a permanent decline. Protection by spraying



For general-purpose spraying the barrel (hand or power) pump outfit is a favorite. Orchard, small fruits, truck crops, weed-killing—all come within its scope of use



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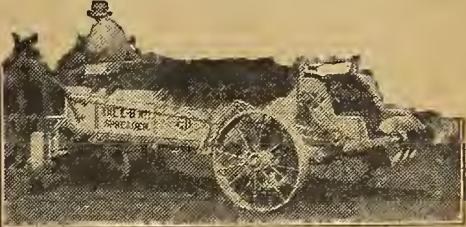
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has remedied the poor quality, and greater demand for grape juice helps to insure a profitable price for all grapes properly grown.

Continuing my journey into the celebrated fruit region bordering Lake Ontario, I motored among the orchards and small-fruit growers.

The scores of remarkably fine orchards proved beyond doubt that the growing of fruit is no longer a matter of chance. I was through this same section of country some half-dozen years ago and the change of heart now apparent among orchard owners in respect to the control of fruit pests was everywhere noticeable. Hundreds of orchards were in the pink of condition as regards health of trees and perfection of fruit where my previous visit found discouragement and indifferent success.

But the real test of spraying is found in the crops of fruit harvested and sold at profit and the continued health and thrift of the orchards. I was told by dozens of owners of apple and peach orchards that they now feel to be practically masters of the pest situation. The question as to the profitability of orcharding as at present conducted in this fruit belt is answered by the steadily mounting price of land now in bearing orchards and those recently set.

There is some difference of opinion among both orchard men and station experimenters in regard to the comparative value of lime-sulphur solution and Bordeaux mixture for the control of fungous diseases.

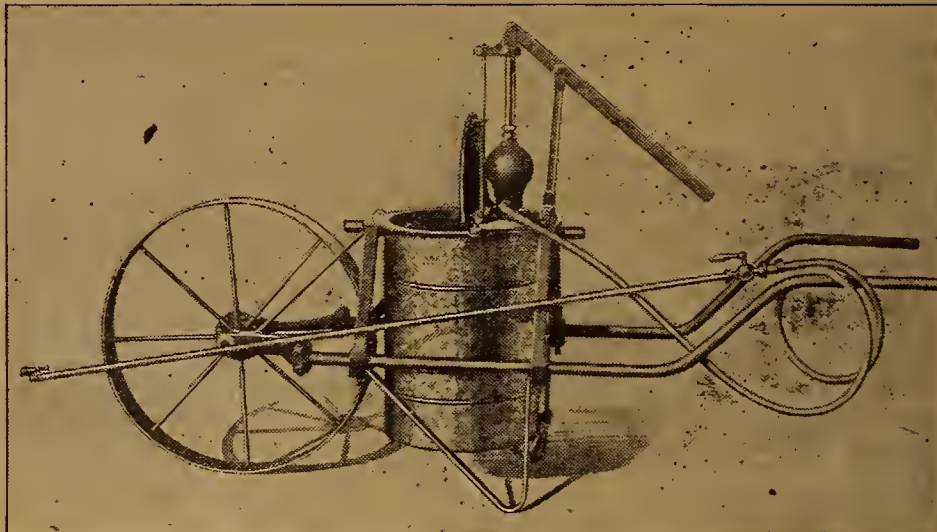
But progressive fruit growers are practically a unit in their belief in lime-sulphur for the control of scale insects, also for its value in conjunction with arsenate of lead for control of such insect pests as codling moth, red spider, blister mite, and the young of any scale insects during the early summer.

I feel sure that many FARM AND FIRESIDE readers will like to learn just how these experienced orchard men go about their spraying. Of course the

middle of April, using standard strength commercial lime-sulphur diluted with 8 gallons of water to 1 gallon of the lime-sulphur. In addition to controlling the San José scale and other scale insects, I find this application, before any buds open, to be of help in controlling some scab and other fungous diseases. The dormant trees, both apple and peach, are thoroughly wet with this spray solution. The next application on apple trees is made just after the flower buds open, but before the flowers spread apart. The second spray solution is composed of three gallons commercial lime-sulphur in 97 gallons of water and 4 pounds arsenate of lead paste. This spray is to control scab and the poison to kill all kinds of leaf-eating insects. The third spray of the same composition as the second I apply just after the bloom has fallen. This is to kill the codling moth, curculio and other leaf-eating insects, and also to control fungous diseases. I generally make one or two more applications of same spray to my apples—one sometimes in July to catch the second crop of the codling moth.

How One Fruit Farm is Sprayed

"For my peaches, after the first application when the trees are dormant, I use home-made self-boiled lime-sulphur solution made with the 8-8-50 formula combined with 1½ pounds of arsenate of lead paste to each 50 gallons of spray solution. Three or four applications of this mixture are made to control brown rot, leaf curl, scab, curculio, San José scale, and other leaf-eating insects. The first is made directly after the blossoms and 'shucks' have fallen, the third three weeks later, and the fourth is used shortly before the fruit begins to ripen. This plan of spraying does not entirely control all the pests, but when the spraying can be done on time, and thoroughly done, I can generally count on 85 to 95 per cent of my peaches being



This one-man type of portable sprayer finds much favor among gardeners, growers of small fruit, and poultrymen. An acre of crops saved will pay for one

size and number of their spraying outfits are governed by the number of trees to be cared for. Barrel spray pumps and tank pumps operated by hand power are found suitable for from an acre or two of orchards or truck crops up to 10 or 12 acres, if the grower of fruit or truck has sufficient reliable help to operate a hand-power outfit. These hand-operated sprayers will deliver 4 to 7 gallons of spray per minute, with a pressure of 100 to 125 pounds. They cost from \$20 to \$50.

Ninety Per Cent Perfect Fruit

A small power outfit will take care of from 15 to 30 acres of orchard, spraying with a pressure of 150 to 200 pounds at the rate of 4 to 8 gallons per minute. These cost \$150 to \$300. The large power outfits provide a pressure of 300 pounds and a capacity up to 12 gallons per minute. These will cover from 10 to 15 acres of average orchard a day, and with extra supply wagon will take care of 60 to 90 acres of orchard-spraying in a season, and cost from \$300 to \$500 each.

Here is a schedule in use by a successful orchard owner, Mr. J. A. Smith of Wayne County, New York: His orchard consists of about 20 acres of apples and 5 acres of peaches. He uses a medium-sized power sprayer having tank and engine mounted on the same truck. His outfit cost him complete, several years ago, \$250. He can spray as high as 8 gallons a minute and hold a uniform pressure of 200 pounds when two lines of hose fitted with double nozzles are in use. Here is Mr. Smith's account of a season's spraying operations: "I pin my faith and practice mainly to commercial lime-sulphur and arsenate of lead, but sometimes make use of Black Leaf 40 and miscible oils for plant lice. My spraying operations begin about the

of first quality, and also hold my peach trees comparatively free from injury by insect pests and fungous diseases. I also have about two acres in cherries, plums, strawberries, bush and cane fruits."

I was specially interested in learning more about the practice of using insecticides and fungicides in the form of dust mixtures in the place of liquid sprays for the control of orchard pests. Dusting experiments have been in operation for several years in a number of New York orchards. Dusting is growing in favor among some of those who have given it a trial, for several reasons. An orchard of given size, particularly where the trees are large and high, can be covered with the dust in one third to one fourth the time required for spraying with liquid, also the dusting outfits are so light, the different sized dusters with 1½ to 3 horsepower engines used to operate them weighing only 200 to 300 pounds. These dusting outfits can be easily hauled on light wagons or stone boats when heavy spraying outfits can be moved only with great difficulty.

Thus far the cost of dusting has been very nearly the same as for liquid spraying. The largest size dusting machines cost about \$125, and with a suitable engine about \$250; a smaller size, complete with engine, about \$150. But there is one important part of the spraying program that the dusters are not yet able to carry out, viz., controlling the scale insect by treatment during the season when the trees are dormant. At present it seems that the owners of large orchards will find it economical to provide themselves with dusting as well as spraying machinery.

[EDITOR'S NOTE: FARM AND FIRESIDE subscribers wishing additional information about spray mixtures or spray machinery will be accommodated if they will write to the Garden and Orchard Editor.]

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Live Stock

Shoeing Experience

By R. B. Rushing

ANY horse worth shoeing at all is worth shoeing well. Yet a lot of good horses are shod every year by men whose only qualification for the work seems to be that they know where the shoes go and how to drive nails, sometimes not even that. Many a horse has been lamed by a blacksmith driving a nail too high up.

If a man has a \$50 watch that needs a little tinkering he'll take it to someone who knows how to do the work right. But that same man will often take a \$200 horse to any crossroads shop to be shod. Sometimes the work is done well. The crossroads shop is often run by a man who knows his business. But it happens too often that the horse's feet are crippled up and a "plug" made of a mighty fine animal, simply from poor shoeing.

A horse is no better than his feet. Have a care that the man who attends to them knows how. Depend on it, you pay for all he doesn't know.

Too many blacksmiths fit the horse's feet to the shoe instead of fitting the shoe to the foot. Sometimes the hoof is cut down too much, or it may not be trimmed level.

Shoes should never be left on longer than six weeks. It is better to have them reset every month. Otherwise the natural growth of the hoof is interfered with. The neglect if long continued is apt to cause the hoofs to be permanently deformed.

Whenever horseshoeing isn't necessary, the cost ought to be saved. But it doesn't pay to save it at the expense of the horse. If a horse is used only on the farm it is often better off without shoes.

In loose snow nothing is gained by having horses shod. But horses which are used much on frozen ground or on icy ground need shoes badly. Without them the hoofs wear down too far, and the feet get sore. Often the hoofs are badly broken. If the roads are icy the shoes ought to be sharp. It isn't much short of wickedness to drive a horse on slippery roads with dull shoes.

Sheep Claim Their Own

By H. L. McGhee

WHILE visiting a hill farmer a short time ago I noticed that he had a small flock of sheep. Knowing that he "had gone in" entirely for cattle, I asked him about the sheep, and this is what he said:

"Three years ago while out buying cattle I bought one lamb for \$1, to bring home for the boys to see, as they had never seen a sheep. Think of that! Farm boys who never saw a sheep in a country where thirty years ago nearly every farm had a large flock. By that you can see how few sheep there are in this section, which is hilly and well adapted to sheep. The dogs had discouraged sheep raisers by killing so many of their flock they had to quit business and try cattle-raising, in which the dogs were not a menace.

"The small lamb grew into a healthy ram and I got him a mate, a ewe for \$2. At the end of the third year I sold \$37.12 worth of wool, and had nine sheep which did not cost me a cent in the way of feed, for they made their living cleaning up the farm.

"Therefore, I have made a profit of \$34.12. Besides, I now have my flock started, and in another year or so will have a considerable flock of sheep. I firmly believe I could pay \$10 for a ewe in the spring and at the end of the year, by selling the offspring and wool, pay for the ewe and have the sheep left clear.

"No animal pays a larger profit under favorable conditions than sheep, and there will be a place on my farm for a flock from now on. I have never been bothered with dogs, as they are not so plentiful as a few years ago. But stringent laws should be made in regard to dogs, and then every farmer may have a flock of sheep and sleep without fear."

Cart for Bulky Feed

By P. C. Grose

A FEW years ago I was forced to construct something that would enable me to save time in feeding soiling crops to the farm stock. The device that I constructed served very well for that purpose and, furthermore, has proved



Here is a bulky-feed cart that has saved its owner a lot of work

itself just as serviceable for distributing hay from the mow to the feed racks in the barn lot.

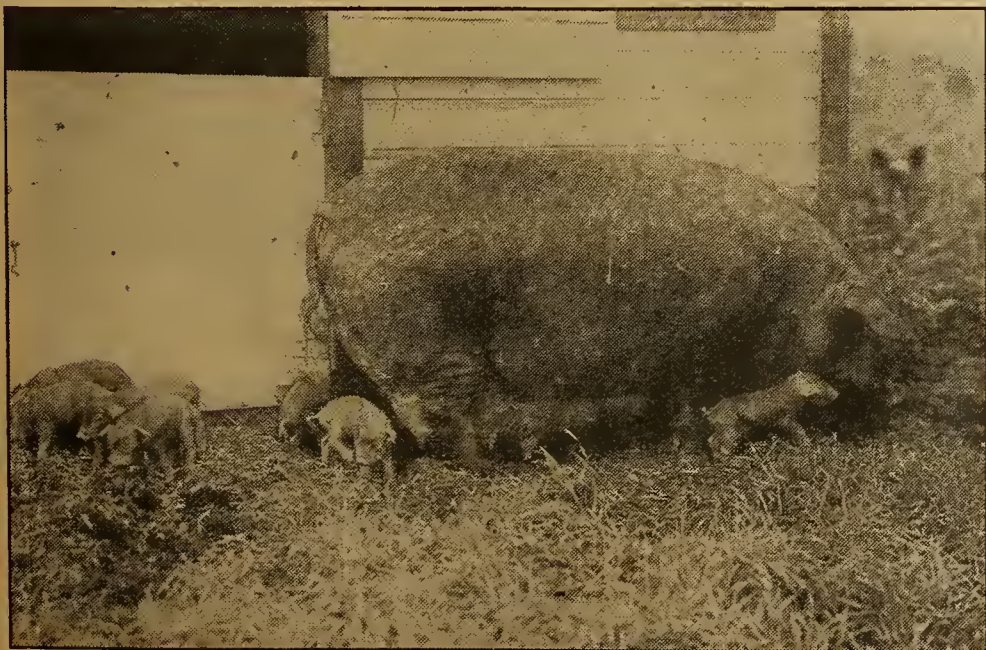
I have never used it for ensilage, but I believe that it would be equally serviceable in handling this feed also, especially where the silo is some distance from the feed lot.

The device consists of a rack, broad at the top and narrow at the bottom, mounted on a two-wheeled truck. For the truck I used two discarded corn-planter wheels. They are broad and so do not readily sink into soft ground. The framework of the rack is surrounded by small-meshed wire netting so fine it cannot be seen in the picture. The top of the rack and the rear end are open.

The truck has a tongue extending several feet in front of the front end of the rack. Under the forward end of this tongue, a small runner is attached on a pivot. To this runner a singletree is secured for hitching up the horse.

This runner supports the forward portion of the truck or rack and, by being turnable, directs the movement of the rack.

An advantage of the rack is that it can be driven under the haymow or the silo and the feed pitched directly into it. Then, too, it can be easily turned about in the feed lot, as it has only the two wheels. It is light and can easily be drawn by one horse. The feed is taken out the open rear end by means of a hooked fork.



The sow and her new pigs enjoy being out of doors a while every sunny day if protected from the wind and the weather isn't too cold



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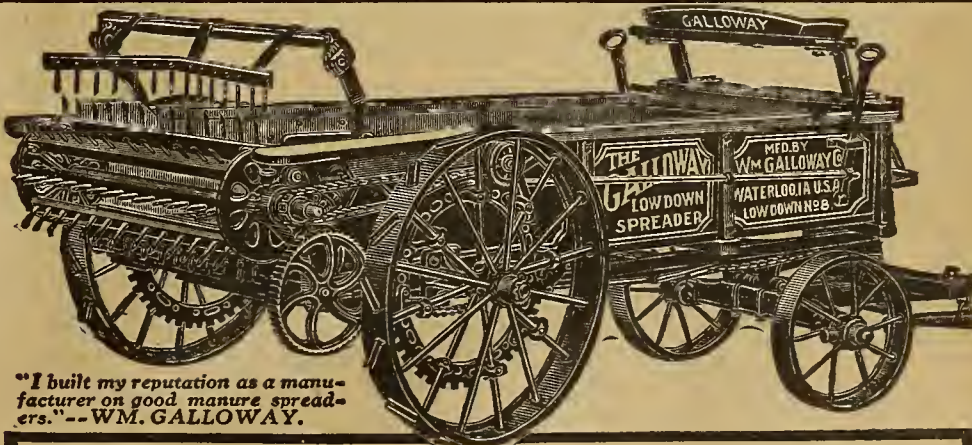
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Dairying

New Bulletin on Abortion

FARMERS' BULLETIN No. 790, entitled Contagious Abortion of Cattle, which has just been issued by the U. S. Department of Agriculture, states that contagious abortion is spreading rapidly and causing an annual loss exceeding \$20,000,000 to the live-stock interests of the country. Though now second in importance only to tuberculosis, it is rapidly approaching first place.

It is a germ disease that causes the death of unborn calves. Either a bull or a cow that is infected may spread the germs throughout the entire herd. The most satisfactory method of control known at present is scrupulous attention to sanitation and the isolation of diseased animals. The bulletin contains 12 pages, is written in plain language, and may be secured free by writing to the Secretary of Agriculture, Washington, D. C.

Advanced Milk Prices

A WIDE-SPREAD feed and labor shortage has been chiefly responsible for the general rise in the price of milk all over the country in the winter just passed. Opposition to the increase on the part of consumers has on the whole been mild. Here are the prevailing retail prices in various cities according to the "Milk Dealer," a trade journal prominent in dairy circles. (States are arranged alphabetically):

	Per quart
Santa Ana, California.....	11c
Denver, Colorado.....	8 1/2
Jacksonville, Florida.....	12 1/2
Carlisle, Kentucky.....	10
Lexington, Kentucky.....	12
Whitinsville, Massachusetts.....	9
Battle Creek, Michigan.....	9
Muskegon, Michigan.....	9
Grand Haven, Michigan.....	9
St. Louis, Missouri.....	10
Augusta, Maine.....	9
Lewiston, Maine.....	9
Lubec, Maine.....	8
Deposit, New York.....	8
Fremont, Nebraska.....	9
Catskill, New York.....	8
Frankfort, New York.....	8
Kingston, New York.....	9
LeRoy, New York.....	8
Cincinnati, Ohio.....	9
Covington, Ohio.....	10
Springfield, Ohio.....	9
Crestline, Ohio.....	10
Galion, Ohio.....	10
Wheeling, West Virginia.....	11
Rhineland, Wisconsin.....	8

Over the heads of this dairy herd hung a neat banner bearing the name of the breed of cattle. On a stand at the rear of the herd, where the sightseers passed by, were two bottles of milk. This milk had been taken from the morning's milking and the bottles neatly capped.

The cream had risen to the top and the line between it and the milk was very plain. The amount of cream was at least average for the breed, and the bottles looked very tempting. For a few moments the young farmer stepped out of the tent. Several women happened along and were instantly attracted by the bottles of milk. At once they began to speculate as to its source.

"Looks like Jersey milk," commented one. "It must be they took only the strippings," said another. "We never get milk like that at our house. Do you suppose there are cows that give as rich milk as that?" said another with some show of doubt.

Just then the young farmer came on the scene and introduced himself by saying: "This milk is from these Guernsey cows you see, and it is an average sample. I took it from the morning's milking." It was apparent that the interest of the women was more than casual so he continued: "This milk tests better than 4.5 per cent, or at least one per cent higher than the law requires in this State. It is probably that much higher than the milk you have delivered at your door."

By this time quite a number of people had gathered and were listening intently. For a moment he stopped talking to display the bottles to some persons in the group who could not see them well. Someone asked what kind of cattle they were. He named the breed, then continued: "I like this breed because the cows give milk that tests high in butterfat and yet not so high



The calf crop of the country is menaced by contagious abortion, which the Government is now trying to control

as to make it too rich to drink and assimilate well." The young man made no claims for them that were not true.

"Let me show you men one of my best cows," he continued, and accordingly led out the one that had a placard on the stanchion which read: "Daisy. Yearly yield of milk, 10,000 pounds. Butterfat, 450 pounds. Commercial butter, 562 pounds." He asked one of the men to hold Daisy while he explained her good points. He called attention to the beauty of the cow.

"We all like nice animals around us," he said. "It doesn't cost any more to have them than the common kind. Do you see what a large roomy middle she has? That is where the food is worked up into milk, and if she didn't have so much capacity there she never would have been able to eat and digest enough food to make 10,000 pounds of milk in a year. Notice that udder. See how well the teats are placed. That and



The thorough ventilation of barns is an important aid in keeping the stock in good health. Metal ventilators are gradually replacing the old-style wood cupolas

their convenient size make it easy to milk her."

The young man did little more during the three days of that fair than repeat over and over again what you have just read. But it was effective, for it set people to asking questions. To the most interested persons the young farmer gave a card bearing his name and address and the name and location of his farm. "Keep it," was his injunction, "and some day when you want some good cows come and look over what I have for sale."

Needless to say, that this breeder is getting orders for all he can produce.

Endorses Contract System

By E. W. Maxwell

I NOTICED in FARM AND FIRESIDE recently that a dairyman in Indiana wanted some information about silo-building. I have a tile silo, 16x52 feet, estimated to hold 250 tons, which was built complete for \$750, of which \$112.50 was the amount paid the masons. I did the hauling and employed two skilled masons to erect the silo, which took them ten days.

I think that the contract system is the most practical for the construction of permanent silos. They will be put up in less time, and high silos make better silage. I chose a tile silo because of the dead air space which keeps the contents from freezing in cold weather. The frost will not go through the walls during the winters we have here in Kansas.

The tile silo may also be used as a grain bin, as the inside walls are always free from moisture. We have fed 95 head of two-year-old steers since November 1st, and as this is written, near the end of January, we have 15 feet of silage left. I feed about 25 pounds a head besides all the alfalfa hay they will eat.

Lately I have been contemplating filling the silo with shocked corn. No doubt it would make good ensilage if the right amount of water is put in. I would like to have some information from someone who has had the experience in winter filling.

Feed Silage and Sell Hay

By W. Milton Kelly

MANY successful farmers have learned that when they can sell timothy hay for \$20 a ton and feed corn silage, they are justified in building silos and selling a few tons of hay each year. They have also learned that by feeding silage along with clover hay, oat straw, and other farm-grown roughage they can maintain their stock in goods condition, produce more timothy hay and return more plant food to the soil than is possible when clover and timothy are fed out on the farm and no provision made for preserving the cornstalks in a juicy and palatable form.

Feeding silage along with clover hay and other roughage will make it possible to feed more grain feeds at a profit than is possible when dry hay and roughage are fed. The benefit from the silage is due to its favorable effect on the animal's digestive system.

There is nothing quite equal to water enclosed in plant cells to give the mass of grain feed the consistency most agreeable to the animal and best calculated to insure complete digestion and assimilation.

It is not the amount an animal eats nor the amount it digests that wholly determines the returns from the feed, but the amount built into flesh or made into milk. Well-matured corn silage gives just the right tone to the animal's system to enable it to get the maximum nutritive value from other feeds.

Hay Crop Pays for Silos

The feeding of clover hay and silage and the use of more grain feeds means better rations and a better quality of manure than when timothy and clover are fed with smaller quantities of grain feeds. Of course, any kind of manure is valuable, but since one of the greatest problems in farming is to maintain soil fertility, if the quality of the manure can be improved, that is an item that should not be lost sight of.

On my own farm the feeding of corn silage and growing clover and alfalfa have made it possible to keep the same number of cows, sheep, and horses, and sell from 20 to 30 tons of timothy hay each year. By depending more upon silage and alfalfa for feeding the dairy cows and sheep we allow our meadows to stand two years and sell the bulk of the second year's mowings. The silos and the older meadows are a sort of insurance against a failure of the clover crop, and the cost of reseeding the meadows is reduced at least one third each year.

The meadows furnish an ideal place for the manure, and by applying it di-

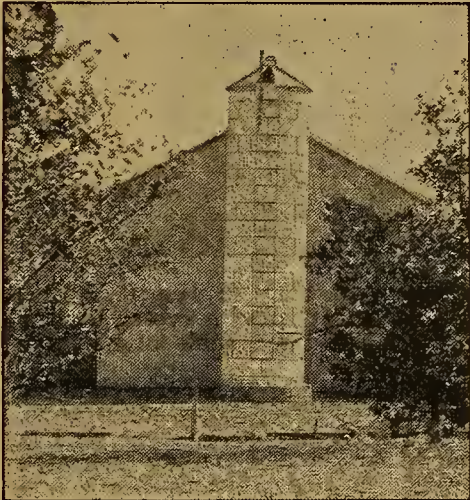
rect from the stables and sheep sheds it will produce as large crops of corn as is the case when it is left in heaps during the winter and applied to the sod ground just before it is plowed for the corn crop.

Several years when timothy and mixed hay have brought high prices we have sold more than enough hay to pay the original cost of erecting our two silos, and carried our stock through the winter in better condition than would have been possible by feeding out the timothy hay on the farm. Any man who has plenty of clover and a few acres of alfalfa hay and one or two good silos can get a large cash revenue from his meadows and carry his stock chiefly on corn silage.

It may be possible to get too much of a good thing, but we are going to build another silo and seed 10 acres of our pasture land to timothy. This 10 acres of rich clay loam will produce an average of 20 tons of good timothy hay under our plan of farming, and we can grow sufficient silage to replace the feeding value of the hay on three or four acres of other land. Moreover, the silage will be available for feeding at a time when drought is likely to check the growth of pasture grasses and cut down milk yields for an entire season.

Moving Metal Silos

CERTAIN types of silos, particularly metal and stave silos, are said to have the merits of being portable, thus making them adapted to the use of tenants. Or if the owner of one of these silos changes his method of farming he may sell the silo and deliver it to the



The concrete base comes halfway up the bottom row of metal plates

buyer even over considerable distances. A reader who has heard such statements asks for further particulars as applied to metal silos.

The facts of the case are as follows: Metal silos are truly portable from the second row of metal plates upward, and may be moved and erected again without serious trouble. The bottom row of metal plates, however, is partly embedded in the concrete foundation if the silo has been properly erected and must be left. Thus, in moving a metal silo of the kind shown in the picture you would need to make a new foundation and purchase a new first row of metal plates.

Stave silos may be taken down and set up in a new location, but the moving of silos, even though successful when carefully done, is, like the moving of a house, not to be generally advised.

Handles Milk by System

By C. C. White

MILK usually becomes contaminated through careless handling. It is clean and pure when it comes from the cow, and may be kept in that condition if the person handling it is careful in his methods. Before beginning to milk I brush the cow's sides, wash her udder and teats carefully, and milk with dry hands. I wear clean clothes while milking, for dirt-laden apparel is certain to give a chance for contamination of milk.

My rule is to clean the milk pails and other utensils used in handling milk in lukewarm water. A good washing powder is used in the water. After washing the utensils I scald them in hot water.

I use a small concrete tank, located near the windmill and away from live stock, for cooling the milk. The tank is covered with a lid to keep the interior cool. I stir the milk to hasten cooling. Milk sours easily if not uniformly cooled.

It is best not to mix morning and evening milk unless they are of the same temperature. Even then it is not a good plan, for there is a chance for fermentation to have started in the older milk. In hauling I protect the cans from the sun by covering with a wet blanket. This keeps them cool and retards the growth of bacteria.



Are Your Cows a BURDEN?

Many cows are a constant drag on their owners when they could just as well be good producers—if properly handled.

Don't forget that your cows can get physically "off color" just as you sometimes do. Watch the milk yield; if it is going down without apparent reason, something is wrong with the cow. Overfeeding is likely to make the condition worse; she needs a medicine that will clear up and strengthen her organs of production.

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It is chock full of dairy wisdom. A meaty, exact, concise, truthful book about cream separators, and how they are built. It tells why by selling direct I can make a machine, as good or better than many high priced separators sold through other systems, for less money saving you from a third to a half of the prices usually paid. It tells the whole story. It tells the facts. That's why I want you to get it. Ask for it today and we'll send it to you by return mail without any obligation on your part. A postal gets it. Please mention separators when writing.

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Garden—Orchard

Getting Most from Gardens

By C. E. Montgomery

IF I were asked what is the main cause of so many poor gardens, I should answer, "Carelessness in making sure of good seed." A poor yield costs as much as a good yield when the poor production is responsible to poor seed. Then, too, so many garden seeds of poor varieties are planted, such as sweet corn that is not sweet, and all kinds of garden truck lacking the best flavor.

I find that here in central New York I am always sure of high quality in sweet corn if I plant Golden Bantam, Golden Nugget, and Country Gentleman that I know to be true to the best types of these varieties. I also find it more satisfactory to use standard known varieties of garden crops rather than to keep trying new and unknown sorts, even though some seedsmen make great claims for their new varieties.

Another all too common cause of garden failures I have found to be lack of proper soil preparation. Poorly fitted soil quickly loses its moisture, and the plants cannot make good growth even when the soil is full of fertility. The common cause of garden corn failing to fill is planting in one or two long rows instead of planting in a square block, thus making it possible for the pollen properly to fertilize the silk.

I get a much better yield of tomatoes by laying six or eight inches of the plant in the soil and covering not too deep.

This allows roots to develop in large numbers, and the plant can therefore better feed itself.

Another important thing is to keep different varieties of corn, squash, cucumbers, melons, pumpkins, and beans as far apart as possible to prevent their mixing and causing inferior quality. When vines begin to run, cover them with a hoeful of dirt every two or three feet. The vines will strike root where covered, and make more vigorous growth and a better yield of superior fruit.

Make Sure of Fruit Supply

By Grace Deitz

OF LATE years, here in eastern Nebraska, owing to frost injury to fruit trees, we have not been able to raise all kinds of good peaches, apples, apricots, pears, plums, etc., nor have we been able to replace frost-killed trees very rapidly, although we are planting hardier varieties every year. However, we do not stop to mourn the death of these trees. Instead, we make small fruits, including strawberries, our chief line of fruit supply.

Our small fruits, when properly cared for, supply all the canned fruit we can use (we had 2,000 quarts last year after they were canned). From the sale of our surplus canned fruit we bought the fruit that we could not raise. We use the steam-pressure method for canning all of our fruits and vegetables, and our meats as well, as it is superior in every way and there is no loss from spoilage.

Help Nature Tie 'Em

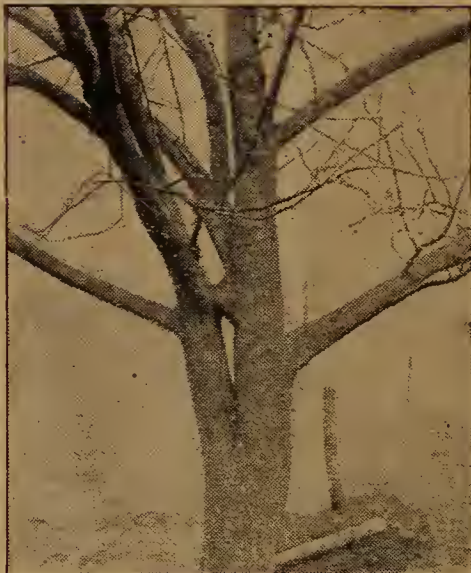
By R. E. Rogers

EVERY few years most farmers and orchardists lose a tree or more by splitting. This is usually one with a crotch, and is caused by each of the two parts of the crotch having more load than it can carry.

Some of our elder trees, which soar up about 25 feet even after severe cutting back, have to be protected from splitting in some way. One method used is to wrap a heavy wire around each of the branches to be protected, some distance above the crotch. An objection to this plan is the cutting of the wire into the tree as it grows larger. Blocks of wood lightly tacked to the limbs to be wired will prevent any trouble of this kind.

Another plan is to use bolts put through the limbs. Have eyes in the bolt heads, and wire the eyes together. Most experienced orchardists believe this plan is the only safe way.

The picture shows another good way that is absolutely without risk of harming the tree. This connection was grafted across the crotch when the tree



was two years old. It was plain that with the formation of a crotch of this kind there would be trouble later in case of a big storm.

Preparedness for these tree dangers before the splitting takes place pays. One of the "family trees" that we live under in summer is already protected this way. It is a Maiden's Blush, and has a value far above just a mere apple tree.

WHEN planting shrubbery and trees about your house, do not lose sight of the fact that your grounds should be attractive in winter as well as summer. For this purpose a few of the most attractive evergreens in the form of shrubs would transform many a bleak and forbidding yard into a place of beauty throughout the winter.

Our Garden Seed Supply

By Margaret Statham

I FIND it something of a question, here in Missouri, as to which is best—to save one's own garden seed or to buy from a reliable seed house. I have found good and bad in both ways. Our family is large, necessitating much planting. So buying all my seeds each year is quite an item of expense. On the other hand, I find that to save seed from year to year from the same stock soon degenerates the quality. I therefore balance things by buying a few fresh seeds each year and saving an abundant supply of seed for next year from the new stock.



This picture shows a hothouse of the modern all-glass permanent type. For convenience and results it marks a great advance over the old-fashioned kind

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OUR GREAT SPECIAL BARGAIN CATALOGUE SENT FREE—OVER 100 FLOWERS SHOWN IN COLORS McGregor Bros. Co., Box 526, Springfield, Ohio



Crops and Soils

Handling Swampy Soil

By Clement White

SOILS classed as swampy—which include marsh and muck soils—have great value when properly reclaimed.

Drainage removes the excess of moisture and at the same time permits free circulation of air in the soil so the poisonous compounds which are usually present will be rendered harmless.

Water is removed first by means of open ditches at frequent intervals. Drainage is most effective when accomplished gradually, so the soil will not dry out too quickly. When the soil dries out too rapidly its mechanical condition may be injured and its absorptive power for water lessened. After drainage through open ditches has rendered the soil firm, a system of tile may be laid.

When the landowner drains a swamp only to find that the soil is unproductive, he is disappointed with the results. Such trouble is due to the fact that the fertilizing matter in the soil is in unavailable condition for consumption by plants. Sometimes such soils need a heavy application of manure. Owing to the nature of their formation they are likely to be deficient in phosphoric acid and potash, and though they may be composed almost entirely of organic matter containing nitrogen, the available nitrogen is frequently deficient.

The first object sought in fertilizing is to correct the acidity of the soil, and to start the processes of decomposition of the organic matter so as to convert the inert into available plant food. Liberal applications of barnyard manure, coupled with the use of lime, is the best means for correcting the acidity of the soil and starting decomposition of organic matter.

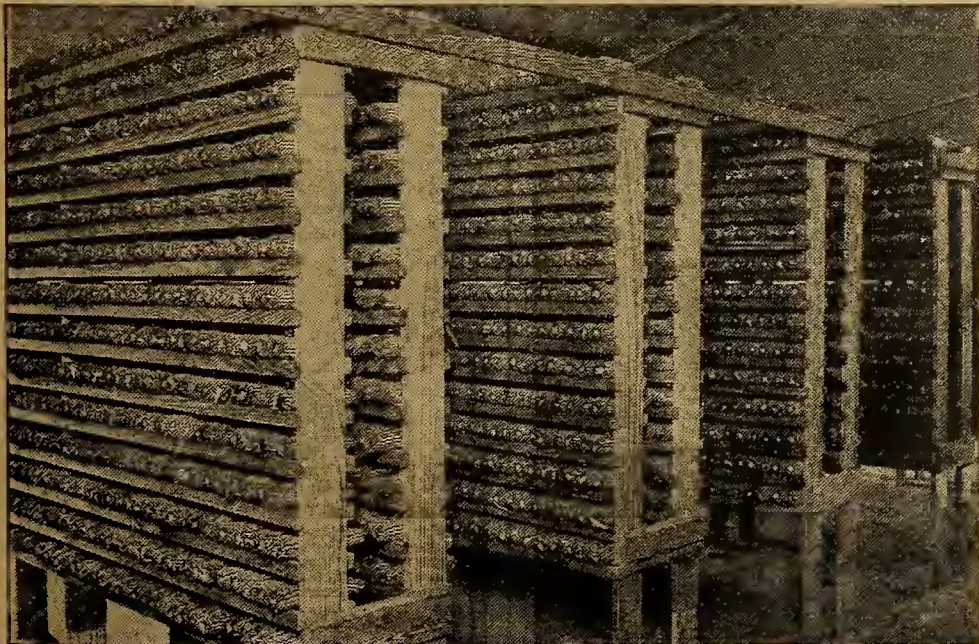
Buckwheat, potatoes, oats, onions, and celery are crops which are best adapted for growing on recently reclaimed swampy lands.

Field Peas for Hogs

By W. H. Peters

ENTERPRISING farmers in North Dakota have found that the Canadian field pea grown as a hog feed is an immensely profitable crop in some parts of the State. Usually the Canadian field pea does not make a satisfactory growth in the heavy soil of the Red River Valley, but in most of the soils in the central and western part of the State the Canadian field pea will make a very good growth.

It may be seeded alone at the rate of two bushels to the acre and pastured by hogs when partly grown, or it may be allowed to mature and be used as a fattening ration either by allowing the hogs to harvest the crop themselves or by threshing the crop and feeding the peas as part of the grain ration. Usually the crop proves a trifle more successful when one bushel of oats to the acre is seeded with two bushels of peas. The oats will help to support the pea vines and the crop can then be harvested better, either by the hogs or with a binder.



Corn that has been kept in proper temperatures in racks such as these will have the vigor to produce good stands when planted this spring

Mother Earth's Laboratory

By B. F. W. Thorpe

OUR best soil and cropping authorities agree that the plant-food element, phosphorus, is the most important single thing in the future of our agriculture. We have the vast deposits of phosphate rock, but the acid treatment to reduce it to a pre-digested plant-food form is a costly operation.

The welcome news now comes that Dr. J. G. Lipman has demonstrated in experiments made at the New Jersey Experiment Station that Mother Earth will chemically treat our rock phosphate free of charge in her own soil laboratory if the farmer will apply sulphur to his soil as a preparatory dissolving agent. According to Dr. Lipman's investigation, this sulphur by the aid of soil moisture and certain bacterial influences forms sulphuric acid. Then when the ground rock phosphate is mixed in that soil, the acid dissolves the rock phosphate and true acid phosphate results. The liberated phosphorus can then be used as plant food. By this plan the costly process of treating the phosphate rock with sulphuric acid is unnecessary.

Later and fuller developments will probably show it is not too much to hope that Dr. Lipman's discovery will do for the thinner and more exhausted land of the East and South what Dr. Hopkins' recommendations are accomplishing for the prairies, richer in vegetable matter and therefore better supplied with acid for dissolving the untreated phosphate rock.

How to Apply Lime

By E. J. Johnston

ALMOST every farmer in our land today faces the problem of building up his soil. Our forefathers had a comparatively easy task of farming with virgin soil, but we find it necessary to restore certain elements to the soil.

Every farmer nowadays knows that lime is principally used to correct acidity. How to determine the acidity, the kind of lime he should use, how much, and how often, are some of the questions that confront him.

Of course, aside from correcting the acidity in the soil, lime has its uses in holding sandy soil together and in making the heavy clay soils more easily worked. It also helps to make the potash and phosphate in the ground available as plant food. Plants also contain some lime and magnesia.

One ton of red clover hay contains 73 pounds of calcium carbonate (limestone) and 27 pounds of magnesium carbonate. One ton of alsike clover contains 49 pounds of calcium carbonate and 21½ pounds of magnesium carbonate. It is significant also that in neutral soil, if red and alsike clovers are planted together, the red, being much stronger, will completely crowd out the alsike; but in acid soils the alsike, being more tolerant of acidity, will grow when the red clover will not.

Some firms supply apparatus by which the acidity in the soil may be determined. However, the litmus-paper tests are fairly satisfactory, and we may be pretty sure if we have a field where clover will not grow, and where plantain and sorrel flourish, that we have an acid soil.

The amount of lime required will of course depend on the acidity of the soil, but ordinarily one or one and one-half tons of burnt lime to the acre will be sufficient when applied every five years.

The lime should always be applied on the top of the ground and then thoroughly mixed by harrowing or disking. It should never be plowed under, as the tendency of lime is to work downward.

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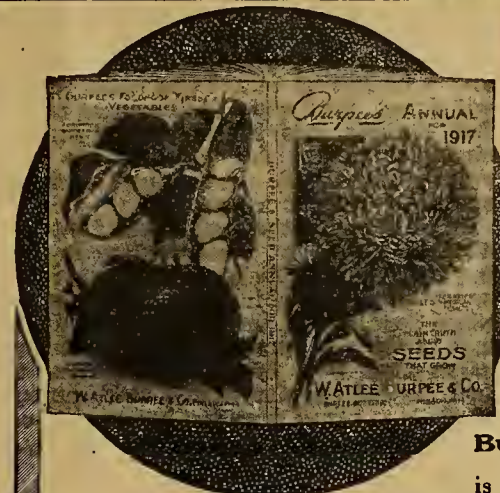
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We have dozens of agents who earn from \$50 to \$60 weekly. Some work only in spare time. Others work only in their own communities. Again others work over wide territory and give all of their time to the work.

The monthly earnings of Patrick Crow have exceeded \$400 twice in the last five months. In 6 days in December, he earned \$124 net.

Makes \$5.00 a Day

Helen Bergens of New Jersey works only in spare time, yet she frequently makes \$5 a day. Then there is F. M. Bartlett of Ohio; he earned \$215 in January.



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applied to eggs during incubation strengthens the chick and weakens the shell. It supplies free oxygen, absorbs carbon dioxide and makes brittle and porous the animal matter of the shell. The biggest thing ever offered to poultrymen. 50 test hatches show average of 96 per cent for Egg-o-hatch eggs and 81 per cent for eggs not treated, right same machine. Send 10 cents for sample, for 50 to 100 eggs. Full size package, for 600 eggs, 50 cents postpaid. Booklet free.

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NEW KIND OF INCUBATOR

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Heights 6 to 17 in. Water-Proof, Rust-Proof, Rot-Proof. Warm in winter, cool in summer. Weight about the same as an all-leather work shoe. Will outwear several pairs of leather, rubber or wood soled shoes. No metal touches you. Thick felt insole. Comfortable to wear. Keep the feet in good condition. Best by test for all work in any weather. MONEY BACK if shoes do not meet with your approval. Write for FREE catalog which shows styles, gives prices and tells how to order. A postal brings it.

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Poultry-Raising

Try Henless Chick-Raising

By E. W. Webster

HERE are the views of a FARM AND FIRESIDE poultryman which come quite close to the bull's-eye: "Now that the annual problem of reproducing our annual supply of layers again confronts us, why begin the same old game again of trying to find broody hens for the early hatches? The hens will refuse to be set in time, and a period of waiting and hoping for 'broodies' will ensue just as was the case last year and previous years. The result will be chicks hatched too late to get into the laying game before cold weather comes, and the pullets will be boarders until about spring, just as most farm-raised pullets are now loafing.

"We don't hesitate to invest a few dollars for harness to keep the horses at work, or improved stable equipment and a separator to get the most out of our cows. But when it comes to put a few dollars into an incubator and a stove-heated brooder so that we can raise chicks at the proper time, such an outlay is utter extravagance.

"The facts in the matter are that the average keeper of farm poultry is trying to keep his chicken business on the same plane as did his grandmother when feed, labor, and poultry products had about one quarter the commercial value they now have. Our advice to such laggard poultrymen is to climb out of their rut and give the hen a chance, or drop out of the hen business entirely."

My Experience with Runners

By Mrs. Geo. W. Church

MY START with Runner ducks was made by the purchase of 50 eggs for hatching. From these eggs I secured 27 ducklings every one of which grew to maturity. The second season I advertised in a small way, and sold all the eggs and stock I cared to spare. I was encouraged to increase my flock of breeders each year, until I was keeping upwards of 200 breeders and raising young stock enough to swell the number to 500 at certain times during the season. After following the raising of Runner ducks for several years here in Pennsylvania I am now able to say that they have proved the most profitable fowl of any I have handled during the score of years I have kept poultry.

One of the important things connected with Runner ducks is their ability to forage in summer when on free range. After grain has been hauled to the barn the ducks will glean the fields until every kernel is found. They are easily driven to any desired feeding ground, where they will remain until their appetites are satisfied, then will return home and the next morning be off to their gleaning again.

On some farms coming under my observation where a large acreage of buckwheat is grown, Runner ducks are of great help in saving the crop since much of the buckwheat sometimes shells in the field and would otherwise be lost unless it were gathered up by poultry. When gleaning buckwheat fields in this

way, large flocks of ducks will require no other feed for weeks at a time.

I find that Runner ducks properly cared for will lay every month in the year, but will lay the fewest eggs in December and January. I have been able to get a higher price for Runner eggs than for hens' eggs, and the demand for Runner eggs is steadily gaining in the large city markets as the excellent quality of these eggs becomes better understood.

Laying Runner ducks must not be allowed to overeat of food that is especially attractive to them. Otherwise they will refuse food the next day, and the result will be less eggs while they are off feed.

I have found the young Runner duck to be a table fowl "fit for the President," and our family prefers it to turkey or chicken on account of its superior flavor. We find Runner ducks less work to care for than hens, as we have not found them to be troubled by vermin or sickness. But they must have dry and comfortable quarters at all times.

The Unionized Hen

By F. W. Orr

THE hens of California are combining forces to standardize their products and cut the cost of producing eggs. Last fall one million hens, mostly owned in one centrally located California county, were incorporated by State Market Commissioner Harris in order to deliver the product of these hens as a unit for the betterment of producers and consumers of poultry products.

The organization takes the name of the Poultry Producers of Central California, with a capital stock of \$250,000. Stock is subscribed for by poultry producers on a basis of 1,000 hens for each share of stock of a par value of \$10 a share.

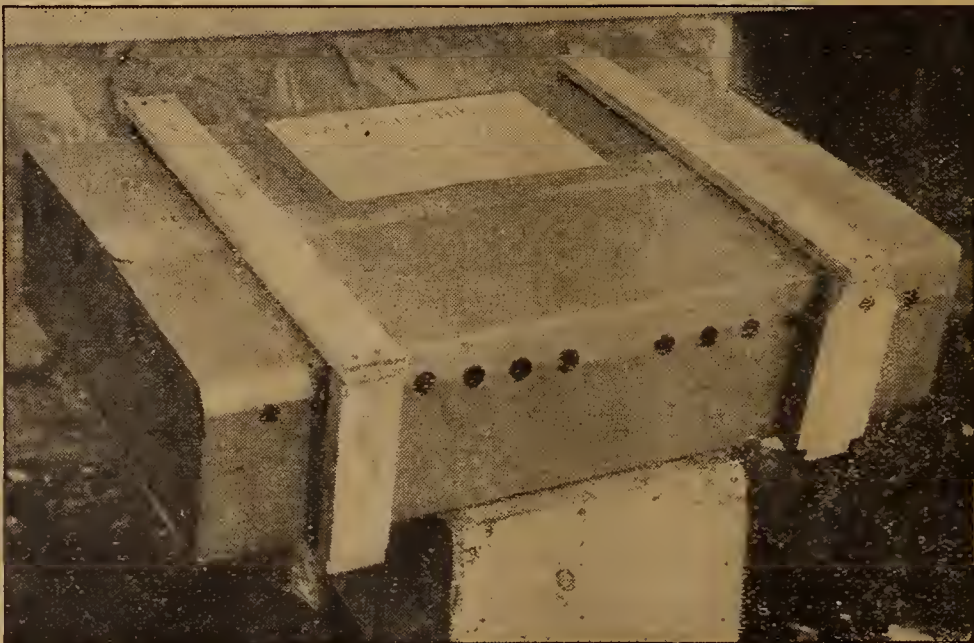
Just over the Tehachapi Mountains to the south another aggregation of hens almost twice as numerous are similarly being organized for the same purpose with a capital stock of \$400,000. These three million hens signed up for the purpose of unionizing and standardizing their products will cut no small figure in the poultry products market of the Pacific Coast trade. Not only this—there will be a distinct effect in holding the poultry-feed market at a reasonable level. So serious has become the manipulation of poultry-feed prices, poultrymen are beginning to find they must organize or go out of business.

Cheap Chick Insurance

By J. T. Raymond

ONE of New England's largest shippers of day-old chicks has hit upon a simple but very effective way to avoid losses in transit. About four inches from each end of a shipping case he nails on cleats of one-inch stock in a band about the case. He uses waste material for these cleats, and in the spring saws up a large supply.

These cleats add little to the weight of his cases and cost next to nothing, but they have proved of great value in averting mortality. Formerly when his chick cases were crowded into corners or up against walls, or buried beneath other goods, suffocation or partial suffocation for the chicks, which receive air through small holes in the walls of the cases, resulted. Now the two bands of cleats about the shipping case allow air to get to the chicks no matter where they are placed while in transportation. The cleats, moreover, strengthen the box, and minimize to a great extent the danger of breakage. This poultryman says the idea has saved him a great many dollars.



The wood cleats nailed about chick crate allow air circulation even when packed closely in express shipments

Biggest Hatches Strongest Chicks

That's what you will get with my Hatching Outfit—and I can prove it. The whole story is in my big Book "Hatching Facts" in colors—sent free, write for it. It gives short cuts to Poultry Success—what to do and how to do it. Start one of these wonderful Prize Winning Incubators making money for you.

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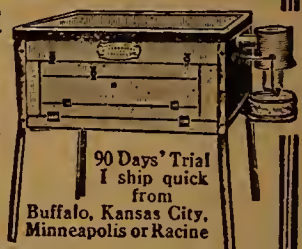
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A Flyer in Fries

By Clara Kennard

MADE \$40 last spring raising chickens for the early market. The chickens were of the Barred Rock variety, and in all I sold 170.

In the dead of winter I gave 350 eggs to a custom hatcher to incubate. The eggs were laid by my own flock of hens. At market price the eggs were worth \$10.35. Two hundred and fourteen chicks were hatched, the custom hatcher charging three cents for each chick, or \$6.42. So far my spring chickens had cost \$16.77.

Two lamp-heated brooders, each with a capacity of 100 chicks, were placed in a brooder house and the chicks allowed the run of the house from the first. Fine-cut alfalfa covered the floor to a depth of four inches.

The chicks were fed in the same manner as those hatched later in the season, except that a warm moist mash was fed four times daily in place of the dry mash. A few of the chicks were backward, as is to be expected when hatched so early in the season, and still others succumbed to various ailments, but 170 of the 214 hatched finally found their way to market. The chicks were placed in the house on February 10th and were marketed from April 25th to May 15th.

The average price received for the chickens was 30 cents a pound, and the chicks averaged 1 1/2 pounds each. The 170 chicks brought \$85, and my expenses were \$45, leaving a net profit of \$40, labor not considered.

Animal Food Economical

By S. Thorne

WHERE the grain feed must be largely purchased for laying hens and growing chicks, a proper amount of animal food is now more economical than in years past when grain prices were lower. Beef scrap and fish scrap are now not much higher in price bought in wholesale quantity than some of the grain feeds, and the nutritive value of the animal food is enough higher to make the feeding value equal, even though it were not needed to increase egg production and rapid growth in young stock. If you have not heretofore made use of meat scrap, fish scrap, or sour milk for laying hens and growing chicks, make a trial of balancing your feeding ration properly and find how much better results will be obtained.

Parson Plans Mash Mixer

By J. T. Raymond

WATCHING a minister poultryman mix his dry mash, I began to understand how it was that, besides attending to a busy pastorate, he cared unaided for a profitable flock of 700 hens. To one side in a quarter circle were barrels containing feedstuffs. On the floor a short distance away was a box perhaps 18 inches deep, 2 feet wide, and 3 feet long.

Into the box the minister threw first a pailful of bran, from barrel number one; then half a pailful of beef scraps from barrel number two; then from different barrels, in order, a pailful of corn meal, a quarter pailful of ground bone, and a pailful of flour middlings. Then, going back to the first two barrels, he threw into the box another half pailful of scraps and, finally, a pailful of bran. Only a few steps had he taken in getting the ingredients together. With a shovel he attacked the contents of the box, and in two minutes had a good mixture.

Home-mixing of the dry mash, when the flock kept is of any size, effects a

worth-while economy. The poultry keeper mentioned above saved by home-mixing 35 to 50 cents a hundred pounds. He knew besides just what went into his mash. Its composition didn't vary, as some prepared feeds do, with market quotations.

The ideal way to combine a mash is in a machine mixer, but only very large poultry farms can afford such a piece of apparatus. The average poultryman will perform the function both cheaply and efficiently by reducing his formula to terms of the eight-quart pail, and mixing in a box with a shovel, the feed being kept in barrels conveniently placed.

Poultry Handicraft

By F. G. Heaton

HERE are some handy kinks I use with poultry to save room and keep feed troughs clean during the winter. I hinge the troughs at one end to the wall of the poultry house. Place a hook in the opposite end of the trough, and a screw eye into the wall at the proper height. When the hens have eaten the mash I brush out the trough and fasten it up by means of the hook and screw eye.

To keep poultry from fouling the water vessels I make a sort of wigwam of heavy wire. The bottom end of the contrivance should be just large enough to fit down over the water vessel firmly; the spaces between the wires must be just large enough to allow the fowls to get their heads in to drink. Bring the wires to a point at the top so that chickens cannot perch on the wigwam, and thus eliminate the possibility of the chickens fouling the water this way.

Eighteen inches is high enough. Make spaces between the wires at the drinking vessel about two inches apart. These wigwams can be made with no other tools than a pair of stout pliers. Heavy galvanized wire is the only material needed.

Adjustable Hopper

By John L. Woodbury

FOWLS sometimes have the habit of pulling down large quantities of dry mash in the hopper to pick out certain ingredients they like best. This not only results in waste, but destroys the "balance" of the ration. To prevent the habit, as well as to regulate the supply when the birds seem to be overeating, make a slide for the hopper. By dropping it entirely the throat is completely closed.

For attaching hopper to wall, nail two strips up and down the back at the ends. Let the strips project an inch and a half at the top. By means of screw eyes and nails driven in wall the hopper may then be hung at any desired height, or can be detached or attached at will.

Score One for Waterfowl

By J. Hoover

THE result of the findings of government experts showing the food value of various kinds of poultry makes a claim that the meat of geese and ducks has been underestimated in regard to nutritive value. These government figures show that geese and ducks in the "green" goose and duckling stages have more than twice the "fuel" value as human food than has young chicken in the broiler and frier stages. Capons and squabs come nearest in food value to geese and ducks, next come turkeys, and last, but not least in palatability, come chickens, quails, and pheasants.

Chick Time! Begin Early!!

Before chicks are hatched, feed the parent stock

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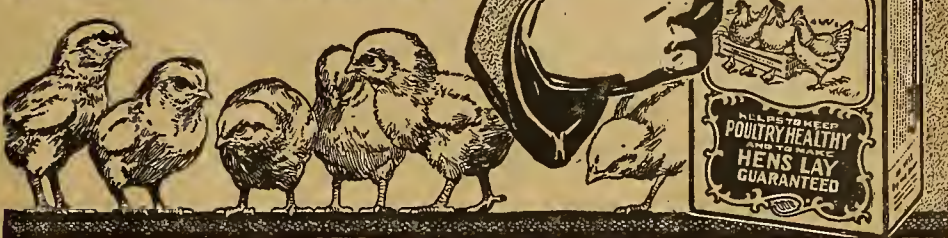
so you will have strongly fertile eggs to hatch out vigorous chicks! Condition all your fowls—keep them in health—feeling good. When hatches come, be quick to supply chicks with Pan-a-ce-a to start them to digesting right and you will avoid Bowel Trouble, Indigestion, Leg Weakness, Gapes—most little chick ailments.

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So sure am I that Dr. Hess Poultry Pan-a-ce-a will help to make your poultry healthy, put them in a hardy, vigorous condition, help your hens lay and your chicks grow, that I have told my dealer in your town to supply you with enough for your flock and if it doesn't do as I claim, return the empty package and get your money back.

1 1/2 lbs. 25c; 5 lbs. 60c; 12 lbs. \$1.25; 25-lb. pail, \$2.50 (except in Canada and the far West). For book on Poultry Culture address

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and Almanac for 1917 with many colored plates of fowls true to life. It tells all about chickens, their prices, their care, diseases and remedies. All about incubators, their prices and their operation. All about poultry houses and how to build them. It's an encyclopedia of chicken-dom. You need it. Only 15c.

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Both Machines \$10

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WINNERS IN BIG HATCHING CONTESTS EVERY YEAR

Think of it! These two UNBEATABLE Wisconsin Machines—both for only \$10—freight paid east of Rockies. Guaranteed 10 years and sold on 30 days trial—

130 Eggs 130 Chicks

MONEY BACK IF NOT SATISFIED

Wisconsin are made of genuine California Redwood. Incubators have double walls, air space between, double glass doors, copper tanks, self-regulating. Shipped complete with thermometers, egg tester, lamps, etc., ready to run. Biggest incubator bargain of the year. Send for our new 1917 catalog fully describing this outfit. A postal brings it by return mail.

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RESULTS

A CHICK FROM EVERY HATCHABLE EGG. STRONG, HEALTHY, ROBUST CHICKS THAT LIVE! MAKES POULTRY BUSINESS PAY—MATCHES NEAREST TO THE NATURAL PROCESS OF THE SETTING HEN.

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BUILT OF GENUINE CALIFORNIA REDWOOD. Egg chambers surrounded with special insulator having hundreds of air cells, guard against temperature change. Corrugated copper hot water heater, automatic ventilation and regulation. No dry, hot blasts to kill chicks in shell. Machines complete. Money back guarantee if not satisfied. Big Free Book explains all special details.

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Express Prepaid

Ironclad Wins in the Two BIGGEST HATCHING Contests Ever Held

Why take chances with untried machines when for only \$11 we guarantee to deliver safely, all freight charges paid (East of Rockies) BOTH of these big prize winning machines fully equipped, set up ready for use! Why not own an Ironclad—the incubator that has for two years in succession won in the greatest hatching contests ever held. In the last contest conducted by Missouri Valley farmer and Nebraska Farm Journal, 2000 machines were entered, including practically every make, style and price. With the Ironclad—the same machine we offer with Brooder, freight paid, for only \$11, Mrs. C. F. Merrick, Lockney, Texas, hatched 143 chicks from 143 eggs in the last contest.

Both for \$11

Freight Paid East of Rockies

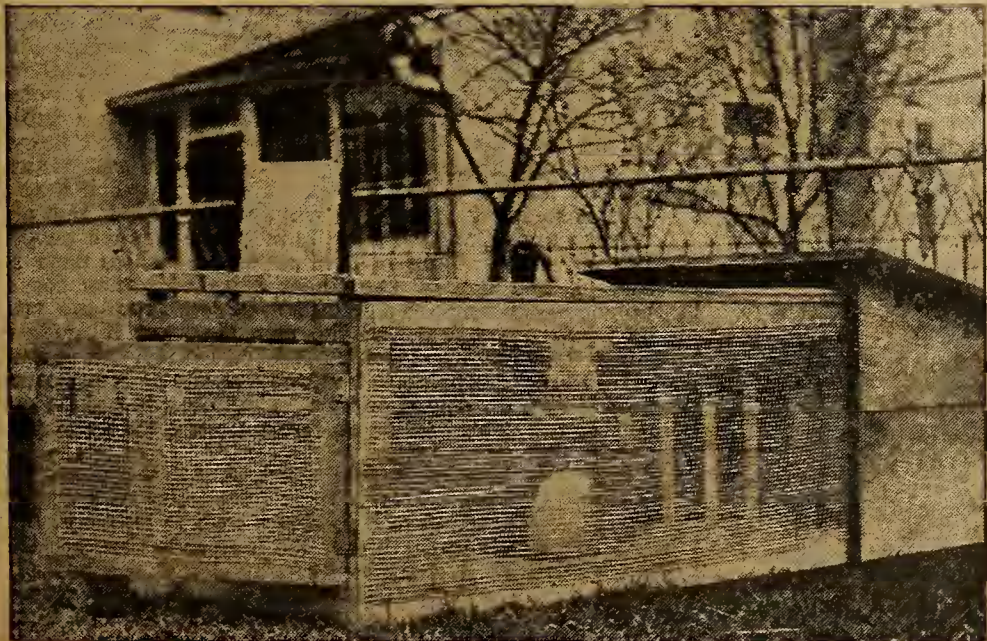
30 DAYS' FREE TRIAL Money back if not satisfied.

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150 Chick Brooder

IRONCLAD INCUBATOR COMPANY, Box 93 RACINE, WIS.

150-EGG Ironclad Incubator. Don't class this big galvanized iron covered, dependable hatcher with cheaply constructed machines. Ironclads are not covered with cheap, thin metal and painted like some do to cover up poor quality of material. Ironclads are shipped in the natural color—you can see exactly what you are getting. Don't buy any incubator until you know what it is made of. Note these Ironclad specifications. Genuine California Redwood, triple walls, asbestos lining, galvanized iron covering. Large egg tray, extra deep chicken nursery—hot water top heat COPPER tanks and boiler, self regulator, Lycos Thermometer, glass in door and many other special advantages fully explained in Free Catalogue. Write for it TODAY or order direct from this advertisement.



Sides, top, and door of this chick run are screened with half-inch mesh to keep out rats, sparrows, cats, dogs, etc.

You may think your new spring hat of vast importance, but it will hardly play as prominent a part as did Leslie's

The Blue Envelope

A Crisis is Reached in the Lives of Three People

By SOPHIE KERR

PART VI

OF COURSE that frightened me nearly to death, but I stood up for Mr. Kennedy and said he wasn't that sort a bit and I couldn't believe he was doing anything criminal. All the same, I intended to take Minnie's warning and investigate as much as I could without asking too many questions and seeming to pry into things.

In the morning, though, when I had made my long trip up-town and hurried through the sunny streets to the big old house in the Bronx where my "counterfeiter" worked, it all seemed foolish even to dream about. I was on time—a little ahead of time—and old George, who was sweeping the walk, greeted me as if I were an old friend.

"God bless the Irish," he returned to my good morning. Then Mrs. O'Malley looked in as I was taking out the typewriter and nodded to me quite welcomingly. Lastly, Mr. Kennedy himself sauntered in from the laboratory about ten o'clock and forgot to scowl as if he were cross.

"I shall have drafts of answers to some of these letters ready for you directly," I told him importantly. To which he responded: "Oh, no hurry," so pleasantly I almost fell off the little typewriter chair. And when he was leaving the room, he turned back and looked at me in an embarrassed way and said: "I was awfully worried yesterday,"—which I suppose he meant as an apology for being cross and abrupt.

I had very little time to think about what he meant, for I had to get up some sort of answers to those formidable letters. I nearly died over those letters! I worked so hard that I could feel myself aging. Honestly, I wouldn't have been surprised to see gray hairs and wrinkles when I looked at myself in the mirror—it was so hard to say anything that sounded adequate or sensible, or business-like. Twenty times I was ready to tell Mr. Kennedy that I would have to give it up, and then—I was just ashamed to do it. It seemed to me that this was my chance to prove, not only to him, but to my doubtful, distrustful self, that I was capable of doing real work, just like thousands of other girls,—real work worth my pay. Oh, I just dug at those old letters! Learning shorthand was A B C to this.

At last, when it was almost noon, I had two or three answers written out to my satisfaction, and I went over to the laboratory door and timidly knocked. Evidently Mr. Kennedy had relapsed into savagery, for he fairly snarled: "Keep out!"

Oh, well, I kept out. I had plenty of things to do. Mrs. O'Malley brought me a delicious luncheon and I ate it, every bit. Then I drafted some more replies; then, by way of diversion, I looked through the files a bit more thoroughly, for some of the letters mentioned previous correspondence.

A very cursory going over of the files convinced me that Mr. Kennedy was no counterfeiter, as Minnie had suggested. It became more and more evident that he was an inventor of some note—not only of powders and explosives, but queer sort of things that have to do with the firing apparatus of guns. It was infinitely more exciting than being a mere counterfeiter. I began to hope that some day, when he was not feeling such a barbarian, he'd let me talk to him and ask him some questions about his work. I fairly boiled and bubbled with questions. But when he finally did stalk out of the laboratory I knew better than to ask him anything. He looked at the replies to the letters I had worked so hard over, made little changes in them here and there, and stalked back to the laboratory.

In the days that followed I made some discoveries about Mr. Ewan Kennedy, Esq., of Scotland, besides the plain facts that he was quick-tempered, red-headed, and an inventor. Some things George told me and some things Mrs. O'Malley told me and some things I found out from his letters. I found out that he had a married sister, a Mrs. Ross, who lived in Toronto, and it was with her that his mother stayed. Also, that he was a devoted son and a very good sort of a brother.

Moreover, the whole Kennedy connection, including the Rosses, were very well-to-do, and there was no real necessity for him to grub away in a dirty laboratory, except that he loved it.

Some of these various facts I conveyed to Uncle Bob and Mrs. Alex, who had put me through a perfect cross-examination by letter, concerning my employer. Mrs. Alex expected to be South all the spring, so she had to be content with sending long-distance

admonitions and cautions, but Uncle Bob wasn't. He came right on to New York and gave Mr. Kennedy, his surroundings, his connections, and his credentials a most thorough looking into by means of various private investigators.

It was so jolly to see Uncle Bob—we went to the theater every night and out to supper afterward at the biggest, brightest restaurants—such fun! He enjoyed it too, though he pretended that he was dead for sleep and was getting quite dissipated. I introduced all my girl friends to him, and though he liked Marya and Celia, it was Minnie who was his never-ending joy—on account of her slang. He thought it was the funniest thing he had ever heard in his life. All of the girls were crazy about him. Finally, after he had about decided that I might stay with Mr. Kennedy, I asked Uncle Bob to come out and meet him too, and he did.

It was one of Mr. Kennedy's better days, and when

files. I caught Smith, a hawk-nosed black-haired chap he was, trying one of the file cases one day behind my back. I saw him in the mirror.

There was another man, more imaginatively named than Smith and Jones—his name was Franklin Fischer—who made life a misery to me, too. He also was a would-be agent; he also would get enormous amounts of money for Mr. Kennedy's explosive; and he, since Mr. Kennedy wouldn't talk to him, tried to ingratiate himself with me and get what information out of me he could.

ONE night as I was starting home, Mr. Fischer met me casually on the street and insisted on accompanying me. When we reached the corner I told him, pleasantly but firmly, that I preferred to go home alone, and then he talked business. Not openly, but in a few little hints he suggested that I must know things about Mr. Kennedy's work that would be

valuable to him and the people he represented, whoever they might be. He could, he announced, make it well worth my while to—well, perhaps turn over copies of my notes to him, and duplicate carbon letters and orders.

"Do you see that policeman standing there?" I asked him at this point. "Yes? Now if you say one more word to me, or come near Mr. Kennedy's house again, I'll appeal to that policeman. There may not be any law to prevent people from trying to bribe other people's stenographers, but you'll get some undesirable publicity out of it and you won't be so useful to the people who employ you after that."

I hardly know how I dared speak so, for I was so frightened. I stood still and watched Fischer go down the subway steps, and then I turned and ran as hard as I could back to the house. I rang the bell, ran past George, and right on through the hall, the parlor, my office, and into the laboratory.

Thank heaven, Mr. Kennedy was there! Of course, I startled him, jumping in like that, but as soon as I began to talk he listened. I poured out my story between gasps of fright and anger.

He was angry too. His eyes gleamed with it, and his red hair fairly bristled. "The

swine!" he exclaimed. "Frightening women! . . . the dirty swine! . . . I'll get him!" Then, more gently, he said: "I'm sorry you got such a fright, Miss Brennan. Come, don't think any more about it. Just wait a few minutes and try to get hold of yourself. I'm going to take you home."

"I don't care anything about myself," I cried. "I don't want you to go home with me—I'm not afraid. You mustn't leave here, Mr. Kennedy. You ought to stay right here and telephone for the police, or get some sort of protection. They might break in and steal your notes, they might—oh, there's no telling what they might do. I'm afraid for you. That man Fischer is—he's a dreadful sort of man."

Mr. Kennedy stared at me reflectively for a minute.

"Now, look here," he said. "You've been fine and loyal and I'm going to tell you something. This house is carefully guarded. It has a perfect network of burglar alarms to prevent the thing you're afraid of. I take no chances—there are three separate and distinct systems, so that if one is queered the others will work. You think I'm careless about my notes and papers—why, my dear child, there isn't a thing in my files that anyone in the world mightn't know. The things that are really valuable are put where nobody but I can get at 'em. The very reason that I live here in this isolated way, with nobody but old George and Mrs. O'Malley, is to guard against people like Fischer getting hold of somebody who's near to me. I had one of the finest little formulas for a powder—an improved lyddite—stolen from me two or three years ago and the men that got it made a fortune out of it. I don't need the money, but it certainly hurt my pride to be done like that. Now, come along; don't worry about me. I'm going to put on my coat and hat and take you home, no matter what you say."

He was as good as his word, and I went meekly along with him, rejoicing in a new sense of security for him. He wouldn't go down on the subway, but ordered a taxi instead, and the long ride through the brightly lighted city streets calmed and soothed my nerves wonderfully. Besides, Mr. Kennedy was—different. Kinder, more natural, and, if it had been anyone else, I should have said that he was interested, and almost attentive to me. When he told me

E.W.



By permission of Vitagraph Film Co.

I poured out my story between gasps of fright and anger. "The swine!" he exclaimed. "Frightening women!"

he wasn't immersed in work and ready to eat anyone alive who ventured to speak to him. They liked each other at first sight, though it evidently puzzled Mr. Kennedy to know why his secretary should have such a quietly elegant old aristocrat of an uncle.

There was one thing that I had to do that was always hard and trying, and that was to see the people who called on Mr. Kennedy and get rid of them. He had a few—oh, such a very few—friends that he would see, and there were also a very few men through whom he bought supplies and to whom he wished to talk personally, when he sent for them. If he hadn't sent for them he wouldn't bother with them. The rest of the people who came I had to see and dispose of.

TWO of the men who came were usually together and all the time they were in my office I felt as though nothing escaped their notice. They were both foreign types, but they called themselves by the obviously assumed names of William Smith and Henry Jones. Those names alone used to put me out of patience with them. They represented themselves as being willing and anxious to dispose of the formula of Mr. Kennedy's new explosive for an enormous sum of money. In the meantime they wanted nothing more than to get a chance to go through his notes and

What Has Gone Before

READ THIS, THEN READ THE STORY: Leslie Brennan, orphan heiress, is told by her guardian, "Uncle Bob," that her father wished her to learn a trade and earn her own living unless she is engaged at the age of eighteen. At the same time she learns that Ranny Heeth, to whom she is engaged, only wants to marry her for her money. She breaks with him, and goes to New York. She learns stenography, and secures a position with Mr. Kennedy, an eccentric inventor of explosives. Minnie Lacy, a boarding-house friend, warns Leslie that he may be a counterfeiter.

good night at Mrs. Harris's door he held my hand a moment. "You're a very plucky little girl," he said. "I won't forget it."

The way he said it made me feel tongue-tied and shy, yet somehow glowing. The last thing I thought about that night when I went off to sleep was his voice saying, "I shan't forget it." He had a nice voice, when he wasn't cross. I knew he must have appreciated my telling him about Fischer, for the taxi had ticked off a bill of six dollars and seventy cents, and he'd hardly noticed it, though he was a Scotchman!

We didn't see Fischer again at the office, but I had an uncomfortable feeling several times that I was followed as I went to and from work, and I was a good bit more careful about destroying notes and papers. I didn't tear them up—I burned them, with my own hands, in Mrs. O'Malley's kitchen stove. Probably there wasn't anything that Fischer and his kind could have used, but I wasn't going to take any chances.

There was a change, too, in Mr. Kennedy's attitude toward me. He was more friendly and now and then he would talk with me a little about the things he was working at. The new explosive was to be called "sarnite" he said, and it would be the safest to handle and the deadliest in effect of anything that had ever been made. He hoped, too, to make it almost deterioration-proof. The best of it was that the formula for it was to go to our own Government, and Mr. Kennedy would not get a cent for it. He said, quite awkwardly, and as if he had been caught in something not at all to his credit, that, hang it, the States had done a lot for him—taught him everything he knew, helped him when he needed help (that referred to a lovely old general in the army who had encouraged him with his first experiments and given him some valuable introductions), and, by Jove, he was not going to be an ungrateful duffer. Besides, he said, as if I might accuse him of good intentions, he didn't need the money.

All these serious affairs of the office and my study of Mr. Kennedy and gradually getting acquainted with him were rather forgotten in the all-absorbing thought that I must buy a new spring suit! My things were all getting shabby and, after long consultation with Minnie, she and I made a pious pilgrimage to the savings bank where I kept the account she had made me start, and we drew out fifty dollars. I won't tell how much or, rather, how little was left. It was perfectly absurd, how happy I felt at having saved enough money of my own earning to buy myself some clothes. My very own money—think of it, earned by my own work! There's nothing quite like the thrill of it.

WE LOOKED at lots of shops, and finally decided on a darling plain little suit of midnight-blue gabardine, good quality and very smart, and it cost only thirty-five dollars! Then we found a blue straw hat, with loops of blue velvet and a big pale pink rose for trimming—only seven dollars. Next we found, after long search, a marked-down blouse of dark blue chiffon cloth and satin for only five dollars, so I had three dollars left and bought a pair of gloves and a pair of dark blue silk stockings, which Minnie said was extravagance. Of course, I'd have to have other things, but I could save enough out of my salary from week to week to buy those, but my precious fifty had dressed me out from top to toe—and maybe I wasn't proud! I just pranced!

The day after the things came home I put them all on and went to work so gaily. The first thing was to run out to the kitchen and show my outfit to Mrs. O'Malley, and after she had admired and exclaimed sufficiently I decided that I'd have to sober down and get to work. I went into my little office and took a last look in the mirror before I took off my hat, when suddenly Mr. Kennedy came in. I was just going to say to him would he please look at my grandeur, when he burst out with:

"This is the most rotten fix, Miss Brennan. Look here."

He handed me a telegram. It was from his sister in Toronto and said that their mother was very sick and he must come at once.

"Oh, that's too dreadful!" I said. "Let me help you get off. I'll get your tickets, and I'll wire that you're coming—there's a morning express at eleven, I think. You can make it."

"But," he said, "to-day's the day I'm to go to Washington with the formula."

That was news to me, but he was such an oyster at keeping his affairs to himself.

"The sarnite formula?" I asked. "Yes, yes—of course," he answered testily. "What else would it be?"

Then I had an inspiration. "You go right along to your mother," I said. "I'll take the formula to Washington."

[CONTINUED ON PAGE 29]

Good-Health Talks

Suggested by Questions from Our Readers

By DAVID E. SPAHR, M. D.



THERE are but few diseases that occupy as prominent a place in medical literature which receive as much attention from medical experts, scientific investigators, and prominent surgeons as the so-called simple disease, goiter, or bronchocele, or struma—which includes all the conditions in which there is a persistent enlargement of the whole or a part of the thyroid gland.

The enlargement of this gland is usually benign, but occasionally may be malignant. It may be only the enlargement of one lobe, or there may be enlargement of one or more of the tissues of which the gland is composed.

Authors enumerate some ten varieties, but a few general varieties will be sufficient for our purpose: acute goiter, chronic goiter, congenital goiter, vascular goiter, and goiter of the accessory thyroid bodies. These different kinds of goiter will be discussed in future issues.

Chills and Headache

I have chills at night, headaches, and am constipated. What can I do?
Mrs. G. D., Michigan.

YOUR liver is inactive. Diet yourself and take two Hinkle cascara comp. tablets at night to eliminate the poisons from your system.

Creeping Paralysis

I am forty-eight years old, have had creeping paralysis for three years. I have been constipated for twenty years. My hands shake and my teeth chatter, and I feel numb all over. In walking I pitch forward.
T. J. R., Missouri.

TAKE syrup-trifolium, one teaspoonful three times daily; also a tablespoonful of paraffin oil at night before going to bed.

Good for Dandruff

Please give me a remedy for dandruff.
J. B. D., Georgia.

WASH the hair thoroughly for two or three evenings with soap and water, and the next night apply an ointment of resorcin, 15 grains to one ounce of vaseline. Keep this up for a long time.

Bronchial Asthma

I have had bronchial asthma for about fifteen years, and it is much worse at night than at any other time.
S. R., Ohio.

HAVE your doctor give you a hypodermic injection of from eight to ten drops of adrenalin chloride. This will often abort the attack, but can be repeated twice a day if you feel it is necessary.

Pimples

I live a simple life, enjoy the best of health, but I am annoyed by pimples on my face.
G. R. C., Michigan.

BATHE the face with hot water and soap, and then apply lightly the following lotion: Salicylic acid, one dram; alcohol, three ounces. Mix and apply every day.

Nervousness

I am so nervous that when I get out in a crowd my heart beats so fast that my face gets red, and people notice it, and it embarrasses me terribly.
C. P., Wisconsin

DON'T be ashamed to be seen blushing; for it is an attractive accomplishment.

To relieve the irritation of your nerve centers, however, take the following: Specific gelsemium, twenty drops; distilled water, three ounces. Mix, and take a teaspoonful every hour, or as required.

Sciatica

MRS. G. P. C. of Michigan writes that her husband had his leg broken at the ankle twenty years ago, and later had the same leg broken and mashed at the hip. His leg is now two inches shorter.

Several years after the accident his hip began to hurt when he sat down, and has been very painful since. He has been to the hospital and has had it

examined by the X-ray, and no cause discovered for the pain. He is getting worse all the time, and the pain is deeper than at first, and he is so nervous, with slight digestive disturbances.

It is not uncommon to have neuritis or sciatica following an injury of a nerve, as his was no doubt injured in the accident, or there may be some adhesions pressing or compressing the nerve. To

go to some hot springs might benefit him; or, if there are no contra-indicating circumstances, his doctor might inject a two or four per cent quinine and urea hydrochloride solution along the course of the nerve and give him relief from the pain.

Bony Tumors

My son has three or four bony growths on his leg below the knee. The largest is about the size of a child's fist. They started four years ago.
Mrs. B. F. R., Nebraska.

MIX one-half ounce of iodide of potash with six ounces of syrup of trifolium, and have him take a teaspoonful three times daily.

Osmidrosis

What will deodorize the sweat of the armpits and not injure the clothing?
A. B. C., Kentucky.

WASH with soap and water every night, and dust with talcum powder medicated with ten drops of formalin to the ounce.

Nervous Convulsion

A year ago while I was combing my hair something seemed to burst in my head, and I felt as if blood were running from my ears, nose, eyes, and mouth. I was in bed a couple of weeks, and it has left a pain and sometimes a soreness in the back of my head.
Mrs. J. B., Ohio.

IT WAS purely a nervous attack, caused by overwork and nervous strain. Take ten grains of sodium bromide in a half-glass of water three times daily.

Cold Feet

I have cold feet from the time the frost first comes until summer.
A. H., Tennessee.

COLD feet are caused by any disease that depresses the circulation. Persons of nervous temperament are peculiarly affected. Wear eiderdown sleeping moccasins.

Biliousness and Constipation

I am troubled with biliousness and constipation.
C. B., Missouri.

TAKE a teaspoonful of chionanthus compound before meals.

Anaemia

What is the cause of a feeling I have on a little spot on the lower part of my right shoulder blade? It stings and smart and then ends in a creepy feeling. It occurs sometimes two or three times daily, and then not again for a week. There is no sign of any eruption.
Mrs. E. F., Massachusetts.

PECULIAR sensations of this kind are of frequent occurrence, usually affecting women. They are due in most cases to slight anæmia, overwork, and worry, also slight digestive disturbances. The treatment is rest, careful dieting, and plenty of fresh air.

The Whisky Habit

Is there any cure for the whisky habit which I could put in my husband's coffee, secretly, without his suspecting it?
Mrs. C. F. U., Montana.

I KNOW of nothing of the kind, I am very sorry to say, for you certainly have my profound sympathy. Three to five drops of fluid extract of ipecac administered as often as the desire to drink came on has had a very beneficial effect in my hands. It was always administered by the consent of the victim. It is just as efficacious in the morphine habit. I do not claim it is a cure, but it will certainly limit the amount consumed. He might not detect a few drops in his coffee.

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Edwards "Tightcoats" Galvanized Roofing can be bent, twisted or struck by lightning, and galvanizing will not crack or flake. Bend it or hammer it, you can't loosen or scale galvanizing. This means an everlasting galvanized roofing that will last as long as the building.

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I am Going to give Away 5 Dandy Ponies



DEAR CHILDREN:


I want you to send me your name and address right away just like almost 200 other boys and girls have done to whom I have given handsome ponies and outfits, for I want you to know all about my wonderful plan for giving away ponies to Club Members. I will send you large pictures of the five ponies I'm going to give away and I will tell you how other children won their ponies. I guarantee you will be more than pleased with "Honey-Boy" or any one of the other four ponies.

Uncle Dave,
The Pony Man.


"Honey-Boy"

I am "Honey-Boy," 44 inches high and Uncle Dave says I am one of the prettiest ponies he ever saw, and he ought to know, for he has been giving away ponies for a great many years. I am a regular thoroughbred, silky black, and you can always depend on me to take you and your little friends wherever you want to go.


Uncle Dave is going to send with me a dandy rubber-tired pony buggy, silver-mounted harness, riding saddle and bridle. Uncle Dave says I have the same sweet disposition found in all Shetland ponies. I'm out here on the pony farm waiting until I can be sent to some little boy or girl who will have a good home for me.



Leonard Foreman of Pennsylvania won "Bonny" just because he was one of the very first children to answer my advertisement. This proves that promptness is very important.



La Verne Fulton of Ohio, as you see, is a very small boy but that did not prevent him from winning "Cupid." You have just as good a chance as did La Verne.



Vivia McNutt of Pennsylvania says, "The reason I won 'Teddy' was because I jumped right in at the start and lost no time in joining your Pony Club." Needless to say, she is very proud of her prize pet.

Do You Want One of These Five Dandy Ponies?

The first thing to do if you want "Honey-Boy" or one of the other four ponies I am going to give away is to send me your name and address on the coupon below together with your answer to the puzzle. For doing that I will give you 5,000 FREE VOTES toward winning one of the five ponies. I will answer your letter right away and send you a big collection of pictures showing many of the nearly 200 happy boys and girls who have already won fine ponies and outfits by joining my Pony Club.

Also I will send you pictures of each of the five ponies I'm going to give away so you can pick out just the one you want. Remember, it will not cost you or your parents one cent. All I ask in exchange for one of these pretty Shetland ponies is that you do a little easy work for me in your spare time. I'll tell you all about it when you send me your name and address, with your answer to the puzzle below. You will be surprised at how easily you can win a pony by joining my Pony Club and you are sure to win if you show the right spirit and follow the easy directions I give you from time to time.

I Have Given Away Almost 200 Ponies to Boys and Girls

I never heard of any of the 200 children to whom I have given ponies until they sent me their names and addresses just as I am asking you to do now. There is nothing difficult about getting a pony from me, for my plan is the easiest one of all. Surely you can do the same thing that these many other children have done.

I am getting to be a pretty old man, but there is nothing I like better than to make my boy and girl friends happy by giving them fine ponies and outfits. Just think of the good times I have reading the letters I get from my happy winners all over the United States, telling me of the good times they are having with the charming pets I gave them.

Think, too, how proud you will be to have a pony all your own. Then as you go riding down Main Street at a merry clip, people will run to their front doors and say, "Isn't that the sweetest and most lovable little pony you ever saw!" You will be the most popular boy or girl in your whole neighborhood and all the other boys and girls for miles around will envy you because it is very likely that you would have the only pony in your whole county.

On this page I show the pictures of only six of the many boys and girls who have been made happy by the ponies I gave them. This proves that I actually do give away real live ponies to boys and girls who do me a small favor.

Every Club Member Wins a Prize Hurry if You Want "Honey-Boy"

In addition to the fine pony outfits I will also give away many other fine prizes such as, Bicycles, Cameras, Watches, Guns, Bracelets, etc. In fact, I give handsome prizes to every member of my Pony Club. There is no possible way you can lose, and if you do what I tell you to do, there is no reason why you can't be the winner of "Honey-Boy" or one of the four other ponies. No matter where you live, every child stands the same good chance. The quicker you mail the coupon with your answer to the puzzle, the better your chances will be for winning one of these fine elegant ponies.


Start Off With 5,000 Free Votes

My new Pony Club is just ready to start, and as this is the first announcement, you can be one of the very first to enter. The most important thing for you to do right now is to send me your name and address together with your answer to the puzzle—that gives you 5,000 FREE VOTES which is a big, winning start toward getting "Honey-Boy" or one of the other four ponies (five ponies in all). Get out your scissors—clip the coupon, write your name and address and mail to me quick.


9	23	1
14	20	1
	16	15 14
25		

**Solve This Puzzle
and Get
5,000 Free Votes**


The figures in the squares above each represent a letter of the alphabet. A is 1, B is 2, C is 3, D is 4, T is 20, Y is 25, and so on. Write the answer to the puzzle in the blank space provided for it on the coupon at the left. Sign your name and address plainly—clip out the coupon and send it to me right away. I will write you at once, telling you just how to go ahead and win "Honey-Boy" or one of the other four ponies and I will also credit you with 5,000 FREE VOTES.



Miss Iona Morton of North Carolina says, "I have some mighty dandy times with my pony. I advise every boy or girl who wants to win a pony to join Uncle Dave's Pony Club."



Virginia Jameson lives away out in Kansas. It's no wonder that little Virginia is so popular, for "Daisy" is the only Shetland pony in her community.



Lena Purchell of New York thinks that nothing could give a boy or girl more real fun and pleasure than owning a pony. I often hear from Lena, telling me of the fine times she has with "Pete."

UNCLE DAVE, The Pony Man,
Dept. M, FARM AND FIRESIDE,
Springfield, Ohio.

DEAR SIR: My answer to the puzzle is.....

..... Please credit me with 5,000 FREE VOTES toward getting one of the five ponies you are going to give away and tell just how to become a member of your Pony Club. Write me at once for I am very anxious to win one of these five Shetlands.

Name

St., or R. F. D.....Box No.....

Post OfficeState.....

Send Your Name and Address to
UNCLE DAVE, The Pony Man
Dept. M, FARM AND FIRESIDE, Springfield, O.



Children's Corner

The Child Who Had Nothing to Wish For

By Marjorie Grant

ONCE there was a child whose name was Bettyrose, and she had everything heart could wish for. She was a princess, you see, and lived in a wonderful palace in the loveliest valley in the world. Of course, the Princess Bettyrose knew nothing about the valley, for the palace and the palace gardens were surrounded by a high stone wall, so high, indeed, that the very tallest footman in the king's service could not see over it. It was a beautiful garden with statues of marble and gold, with fountains of silvery water everywhere, and with every flower you can think of planted in straight rows and squares and circles and stars. The trees were pruned until their leafy branches formed shapes of birds and pyramids and many strange forms. In the very center of the garden in front of the palace was the name "Princess Bettyrose" in growing pansies!

But the Princess Bettyrose walked sadly about the garden with two little pages, in suits of velvet and gold, whose duty it was to follow her everywhere and harken to her slightest wish. Whenever she wanted anything, she simply clapped her hands together and asked for it. Then the pages in suits of velvet and gold went speeding up the marble steps to the tallest footman in the king's service.

"The Princess Bettyrose desires a Chinese doll that can speak French," they would cry breathlessly. Then the footman would speed to the Royal Butler and cry: "The Princess desires a Chinese doll that can speak French." And the Royal Butler would speed to the Lord High Chamberlain, and the Lord High Chamberlain to the King with the very same message, and before she could clap her hands twice the Chinese doll that could speak French was brought to the Princess Bettyrose.

You would think that she would have been a very happy child, but she was not. She walked about the palace gardens with the pages in velvet and gold, and her heart was very, very sad.

"Is there anything your gracious highness wishes?" the pages would ask eagerly.

"There is nothing to wish for," the Princess Bettyrose would answer wearily.

THAT was the trouble. The Princess had everything in the world that heart could desire. There was nothing to wish for.

Days and days passed. The little Princess grew listless and pale. The King and Queen, the courtiers and all the royal household were very unhappy. The Royal Candy Maker made the most tempting dainties of nuts and sugar, the Royal Toy Maker designed the most marvelous toys, the High Chief Cook prepared the most delicious tarts. It was, all in vain. The Princess had everything she desired. She could think of nothing to wish for.

At last the worried King and Queen consulted the Wisest Doctor in the court.

"What can we do to bring back the roses to her cheeks and the light to her eyes?" they asked.

The Wisest Doctor pulled his spectacles down on his nose and looked over them very wisely and solemnly at the Princess, who sat in the royal playroom, surrounded by every toy ever dreamed of, with her hands folded listlessly in her lap.

"There is nothing the matter with her except that she has everything she wants," he said.

And the King and Queen sighed: "How can we make her want something?"

The Wisest Doctor in the court thought earnestly and hard for twenty-four hours.

Then he came to the King and said: "Send away the pages in suits of velvet and gold and let me have the Princess Bettyrose for a day."

They gladly consented, and the Wisest Doctor took the sad little Princess' listless hand and walked with her to the farthest corner of the garden. And there low down in the high wall (so high that the tallest footman in the King's service could not look over

it) was a hole where some workmen had removed a stone. The Princess Bettyrose ran to it and gazed out into the valley. The doctor watched her wisely for a moment and then walked back to the palace.

Bettyrose clapped her hands together. "I want to go outside the garden," she cried. Then she remembered that the pages in velvet and gold were not with her, and she clambered through the hole and skipped gleefully down the road.

She had not gone very far when she came to a cornfield and spied two children playing barefoot among the green rows. They were laughing and chattering merrily.

Bettyrose ran out to them and clapped her hands together.

"I want to walk barefoot," she cried. Then remembering that the two little pages in velvet and gold were not with her, she sat down and took off her satin shoes and her silken stockings. The three ran off to wade in the brook. The children, whose names were Lilysweet and Jonathan, showed Bettyrose where some wild raspberries grew, and the Princess ate them hungrily.

"Let us take some to Peterdick, who cannot walk," said Jonathan. And they gathered flowers and berries and other treasures for the poor little cripple, whom Bettyrose loved as soon as she saw him. So happy was she that she

even the tallest footman were shocked when the Wisest Doctor set her down before them. She was barefoot and dusty, her dress was torn and stained, her royal curls were every which way.

"Terrible!" said the King and Queen. "Terrible!" murmured the courtiers. "Terrible!" whispered the servants. "But see," said the Wisest Doctor, "the roses in her cheeks and the light in her eyes!"

"True," said the King and Queen. "True," murmured the courtiers. "True," whispered the servants.

"Is there anything your gracious highness wishes?" the pages in velvet and gold asked eagerly.

"YES," said Bettyrose. "I wish the doctor would cure poor Peterdick's leg so that he can walk again. I wish to have the high wall torn down so that Lilysweet and Jonathan can play in the royal garden if they want to. And I wish to have my toys given away to sick children who cannot run and play. And now I'm sleepy and I wish to go to bed."

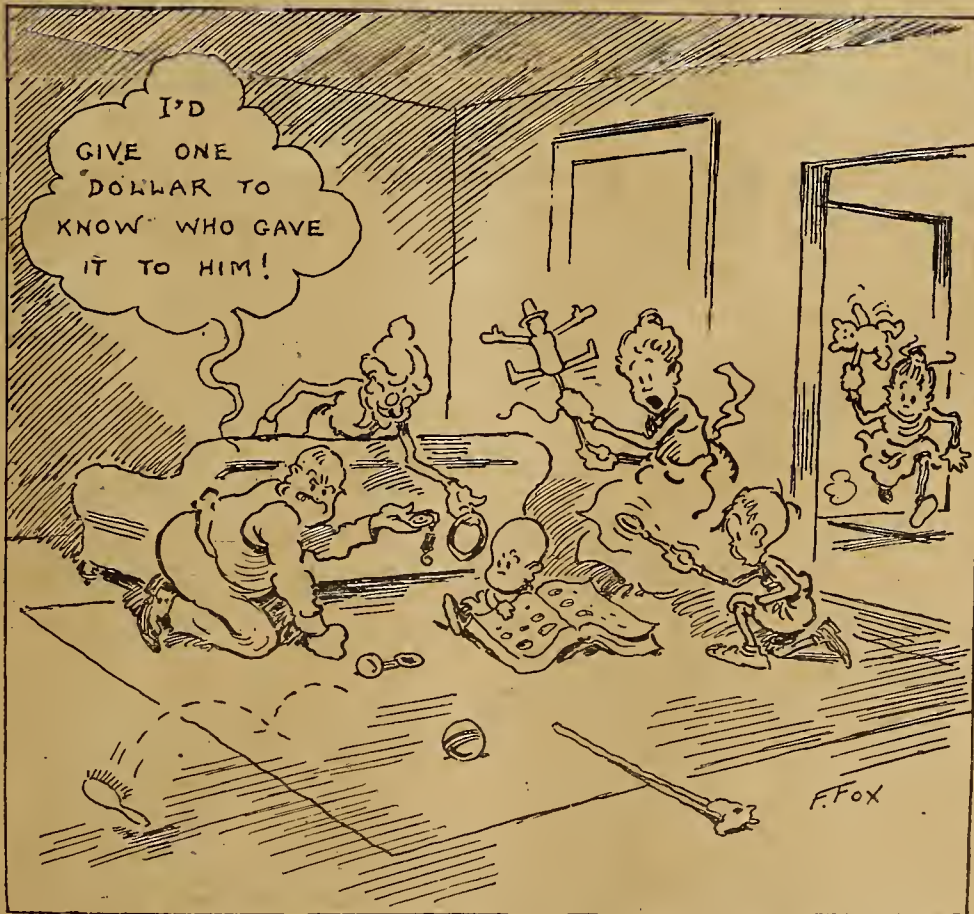
After that the Princess Bettyrose played with other children in the kingdom every day, and she always had something to wish for to make them happier. The King and Queen and the courtiers and all the royal household were delighted, but the Wisest Doctor was the most delighted of all.



She spied two children playing barefoot among the green rows

forgot all about the King and Queen and the court. And when the Wisest Doctor came searching for her at night, she was eating her supper of milk and bread and strawberry jam with her new friends. When she parted from them she kissed them all good-by and said: "I am coming back in the morning."

The King and the Queen and all the court, the Lord High Chamberlain, and



Group picture of the family trying to get Dad's garden seed catalogue away from the baby without starting the big yell

New Puzzles

Three Miners Journeyed

Three miners who planned a long journey into the desert realized that they could not carry enough provisions to last all three the entire distance and return, so they figured out a method whereby provisions were to be transferred from one to another so that first one man should return, then a second, and the third continue just as far as possible, not forgetting to reserve enough provisions to last him on the return trip. Each man started out with enough food to last 72 days, and they traveled at the rate of 20 miles each day.

It is quite a puzzling matter to figure out how far one member of the party was able to proceed, remembering that all three returned to the starting point without cutting down rations.

Answers to Puzzles

Puzzles Printed Last Issue

Puzzling for Buttermilk

The children first filled the pail, then filled the bottle from the pail, leaving two pints in the pail, which Mother drank, then poured three pints from the bottle into the pail. Filled the bottle from the jug, leaving one pint in the jug. Filled the pail from the bottle, leaving one pint in the bottle. Then they drank five pints from the pail. Then poured the one pint from the jug into the pail, and the feat was performed. Other methods require more operations than the above, which solves the problem with six pourings of the buttermilk.

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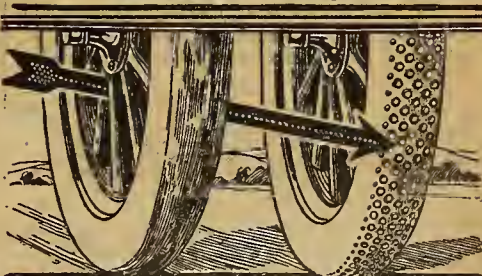
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Housewife's Club

Coloring Plumes

By Elsie Ahlers

FADED plumes and feathers may be colored at home and made to look as nice as when dyed by a professional cleaner. Purchase a tube of water-color paint of the desired color and a pint of gasoline. Put the gasoline in a deep vessel and add, little by little, the paint, until you have the shade you wish.

Plunge the plumes or feathers in, and move about until they are evenly and thoroughly colored. Then lift from the dish and shake in the air. Do not use this dye near a fire.

A Vacuum Cleaner System

By W. N. Donohue

THE disagreeable task of house-cleaning has been reduced to a minor detail at the home of A. M. Hawthorn, near Dexter, Iowa. During the year 1913 Mr. Hawthorn installed a vacuum-cleaner system which cost only \$14.50 besides his own labor, and which has given the best of service.

The fan which produces the suction for the cleaner is located on a shaft near the top and to one side of the wash house, and is propelled by a two-horsepower gasoline engine. This fan is 2 feet 3 inches in diameter and makes 8,000 revolutions a minute, giving the engine all the resistance it will stand. This large fan is enclosed in a galvanized iron case with an opening about four inches square in the rim, leading to the outside of the wash house, thus giving the exhaust air an escape.

One side of the case is made air-tight, while the side in the direction of the house is drawn to the form of an apex and is entered by a three-inch galvanized conductor pipe. This pipe extends horizontally a distance of 25 feet to the house, and is then bent downward to enter an air chamber in the basement. This chamber is two feet deep and one foot in diameter, and is located near the ceiling of the basement room.

Another three-inch pipe enters this air chamber, and a coarse heavy flannel cloth encased in a wire net is suspended in the chamber from the end of this pipe. This pipe extends along the ceiling a distance of 15 feet, and from it three outlet pipes are connected.

These three outlet pipes are one-inch steel pipe, and are so located that their extension upward makes a place for the connection with the long hose of the cleaner. Two of these connections are made to be used for the main-floor cleaning, and the third is extended up through a side wall to make a connection for the up-stairs cleaning.

The costs at 1913 prices, as enumerated by Mr. Hawthorn, are as follows: 45 feet conductor pipe, \$2.50; fan, \$7.00; fan case, \$2.00; the basement air chamber is an old carbide tank and might be valued at \$1.00; 17 feet of 1-inch pipe, \$2.00. Total, \$14.50.

Everyday Table Service

By Mrs. Emily H. West

WE HADN'T any helper in our home, and the four hired men and a family of six meant plenty of work. It was only after we built a house for our married man and arranged to have him board the single ones, so that we had just the family at meal times, that I noticed into what careless ways we were falling in the matter of table manners.

Like most normal people my family objected strenuously to anything that sounds like "putting on airs," but I found a natural excuse for my campaign of reform in the training of my ten-year-old daughter.

The first thing was to stop my hit-or-

miss method of setting the table and teach little Esther, and incidentally the whole family, to do it nicely and at the same time simply. To save dishes and time I had in the past sometimes allowed breakfast foods to be placed on the table in the package, or jelly in the glasses in which it had been put up, and I hadn't much system in the placing of silverware. All food had been placed on the table and passed around, each person helping himself.

I taught Esther to place the silence cloth smoothly on the table, to unfold the cloth carefully on the table so as to avoid wrinkling it, and arrange it so that the principal fold was directly in the center so that the cloth hung down nine or ten inches on all sides.

The rules I taught her were few and simple: to place the knife at the right side of the plate, cutting edge toward the plate; the spoons, bowls up, at the right of the knife; the forks, tines up, at the left of the plate, all in the order in which they were to be used, beginning at the outside. The napkins, of course, go to the right of the forks. I use crêpe napkins for everyday use because they are so easily laundered, and instead of napkin rings I use square white envelopes with the name of the owner printed on each in ink. I like this better than using rings because in this way each napkin is separate from the others. The envelopes can be renewed frequently and so are always fresh.

The service we have adopted is the very simplest. Since the man of the house often comes in very tired after his day's work, I do not think it fair to ask him to serve at the head of the table every day. Besides, it is good for the young people to have practice in serving. So

Collar and Cuff Set



A DAINTY crocheted edge finishes this attractive collar and cuff set of linen embroidered in a heart design of contrasting silk. Complete directions for making the set with the edging will be sent by the Fancy-Work Editor, Farm and Fireside, Springfield, Ohio, on receipt of four cents in stamps.

we take turns in serving, removing the plates and bringing in dishes from the kitchen. Our wheeled tray makes this very simple. No one is permitted to begin until all are served.

I find that the talk at the table is livelier and yet much more courteous than it used to be when we ate without any formality whatever, and I don't need to worry about the children's manners when we have company at dinner.

CLEANING THE FOOD CHOPPER—To clean the knives of a food grinder run a small piece of sand soap through them.
A. S., Iowa.

TO WASH CORDUROY—To wash corduroy satisfactorily, never wring, but pin to the line while still dripping wet.
F. A. R., Montana.

TO REMOVE GLASS STOPPER—When a glass stopper cannot be removed from a bottle with the hands, put a cord around the neck of the bottle and work back and forth quickly, thus heating the neck of the bottle, and the stopper can easily be taken out.
E. G. J., Oregon.



Cookery

Harmless Fried Foods

By Cecelia Sharp

FRIED foods are to blame for a good deal of indigestion, but the injury is not due so much to the fact that they are fried as to the method of frying. Long cooking at a low temperature is usually the cause of the difficulty. The fat soaks into the food, and the result is greasy and indigestible. No cook would think of frying doughnuts in fat until it was smoking hot. In the same way, potatoes, parsnips, bread, mush, or anything that is to be fried in a skillet should be put into the hot fat and browned quickly. People who like the rich flavor which frying imparts may eat things cooked in this way without fear of the consequences.

Sugar Beets for Table Use

By Florence Knox

YOUNG beets cooked with a portion of the top left on the root and seasoned with butter, salt, and, if one prefers, a little vinegar make a very palatable dish. I am fond of them, but I object to that bitterish flavor which grows as the beet grows.

Some time ago I bought some seeds of the early Egyptian variety. There were some pale-looking beets among them that looked as if they were distantly related to the sugar beet, and I noticed when I cooked them that they were less bitter and more tender than the red ones.

Last spring I bought a packet of sugar beets, not the red sugar beet, but the common kind which is raised for stock. I planted them as an experiment, and I am more than delighted with them. They are tender and delicately flavored while very young, and I like them better than the red varieties even when they are larger. They grow very rapidly too, and I shall always raise them hereafter for table use except for pickles.

POT ROAST—Take a piece of chuck roast, say two pounds. This is enough for a family of five. Have the skillet good and hot, put a tablespoonful of lard in it. When it is smoking, put in the meat, having first salted and peppered it, sear it on both sides. Then place in a baking crock that has a lid. Put a little water in also. Pour in the hot lard, add a chopped onion, a little summer savory or sage for seasoning. Let it bake at least one and one-half hours. Put some potatoes on to boil; when you can barely pierce with a fork, drain and salt, and place in the crock with the meat after the meat has started to cook. When nearly done, take the lid off, and brown the potatoes. Make a thickened gravy.
Mrs. L. K. P., Kansas.

COTTAGE-CHEESE SALAD—Mix with cottage cheese a generous quantity of chopped nuts. Put about a tablespoonful on lettuce leaves on each salad plate. Surround with green peppers previously parboiled for ten minutes and cut in strips. Add mayonnaise or other salad dressing.
This is delicious for lunches.
C. M., Illinois.

CHEESE FONDUE—One cupful of fine bread crumbs, two cupfuls of rich milk, one-half pound dry grated cheese, three eggs beaten light, one tablespoonful of melted butter, pepper, salt, and a pinch of soda dissolved in hot water and stirred into milk. Soak the crumbs in the milk; beat into this the eggs, butter, seasoning, and lastly the cheese. Pour fondue into baking dish, sprinkle bread crumbs over the top, and bake in a rather quick oven until brown.

Serve the fondue while still very warm, because it falls quickly.
R. S., Wisconsin.

The Blue Envelope

[CONTINUED FROM PAGE 25]

He stopped and stared.
 "Do you—yes," he went on slowly. "I can trust you."
 "Of course you can," I said. "Now, let's all hurry."
 It meant real hurrying, too. I ordered tickets and reservations and sent telegrams and got Mrs. O'Malley to pack Mr. Kennedy's bag, and did everything, even telling Mr. Kennedy that he'd have to wash his hands and put on proper clothes, for he couldn't travel in his laboratory outfit. He was running about like someone quite mad. Finally he appeared, looking downright handsome, in a nice business suit and a soft hat and an almost decently tied necktie, and I had almost rushed him out to the waiting taxi when I said suddenly: "But where's the formula?"
 He handed me a thin blue envelope and a thick white envelope, both securely sealed.
 "Present that letter to the chief of ordnance," he said, meaning the white envelope. "And this," he touched the blue envelope, "this is the formula. Don't lose it. Good-by." And he nearly wrung my hands off and jumped out to the taxi.

I HURRIED to the door to look after him, and, I don't know why, but a little thrill of fear came to me. I was frightened—yes, actually frightened of that blue envelope. Common sense told me that the trip to Washington was very short, that I could have taxis and be right among people every minute. Yet—

Then I remembered something I'd once seen in the movies, and I walked back to my desk. I took a thin sheet of paper and I wrote on it:

"The time has come," the walrus said,
 Of shoes and ships and sealing wax,
 Of cabbages and kings,
 And why the sea is boiling hot
 And whether pigs have wings!"

I folded this poetic fancy and put it in another blue envelope—there were plenty of them in my desk. I laid it aside with the white envelope Mr. Kennedy had given me. Then I took off my new blue hat and I ripped open one of the velvet loops. I tucked the real blue envelope safely inside and sewed it there, with tiny close stitches, for I had my own little sewing kit now, like Marya.

I put my hat back on my head, placed the false blue envelope and the white one into my hand bag, and prepared to travel, feeling very much like the "beautiful Confederate spy" carrying dispatches to General Lee—see third reel of a favorite film.

Nevertheless, I made George go down to the train with me, and I didn't get my courage back until I was safely in a Pullman chair of the Washington Express. I had got on in the center of a small crowd of passengers, but there were not very many people in the car. I glanced about and saw that across from me there was a respectable-looking woman, dressed in mourning, and on either side of my seat there were quiet, middle-aged men. When the train had passed Manhattan Transfer I turned my chair to the window to count the money in my purse. Mr. Kennedy had put some bills into my hand and I wasn't sure how much I had. I didn't even know whether I would be able to get back to New York that night, but I wasn't worried about that. I counted the money and stuffed it back into my diminutive purse, and was just going to close my bag when something made me look up. Standing at the end of the car and looking straight at me was the man Fischer.

I JUMPED—it startled me so, and instantly he disappeared. A dozen impulses came to me—to call the porter or the conductor, to appeal to the woman across the aisle, but presently I grew more cool. After all, I was perfectly safe. It was daylight, there were ever so many people within call, and lastly, I was a goose to be so scared, especially as nothing had really happened. Just then something else occurred to me to puzzle me: Why hadn't the conductor collected my ticket? He might have gone through when I wasn't noticing—when I was counting my money, for instance, but it was rather queer that he didn't come back.

I sat there wondering and worrying and watching for Fischer's reappearance, which didn't happen until the train pulled into North Philadelphia. The two men on either side of me got up and so did the woman opposite. She came to my chair, leaned over me, and said in a low voice:

"We get off here. Come with me quietly or we will have to take you off by force."
 E"

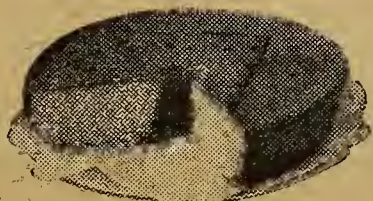
[CONTINUED IN NEXT ISSUE]



With the use of Royal Baking Powder, fewer eggs are required and in some recipes, may be omitted altogether.

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A new and economical way to make a fine sponge cake



SPONGE CAKE

1 cup sugar
 1/2 cup water
 3 eggs
 2 teaspoons Royal Baking Powder
 1 cup flour
 1 teaspoon salt
 1/2 cup cold water
 1 teaspoon flavoring

The old method called for 6 eggs and no baking powder

DIRECTIONS:—Boil sugar and water until it spins a thread and add to the stiffly beaten whites of eggs, beating until the mixture is cold. Sift together three times, the flour, salt and baking powder, and add alternately to the white mixture with the yolks of the eggs beaten stiff. Add 1/2 cup cold water and flavoring. Mix lightly and bake in moderate oven about one hour.

Eggs are not necessary to make these excellent muffins



EGGLESS MUFFINS

2 cups flour
 1 cup milk
 4 teaspoons Royal Baking Powder
 2 tablespoons sugar
 1 teaspoon salt
 2 tablespoons shortening

Makes 18 Muffins

The old method called for 2 eggs

DIRECTIONS:—Mix and sift dry ingredients. Add milk, stirring until all lumps are out, add melted shortening. Beat well and bake in greased muffin tins in hot oven from 20 to 25 minutes.

A delicious, inexpensive dessert easily made at home



JELLY ROLL

1 cup sugar
 1 1/2 cups flour
 1 egg
 3 teaspoons Royal Baking Powder
 6 tablespoons hot water

The old method called for 3 eggs

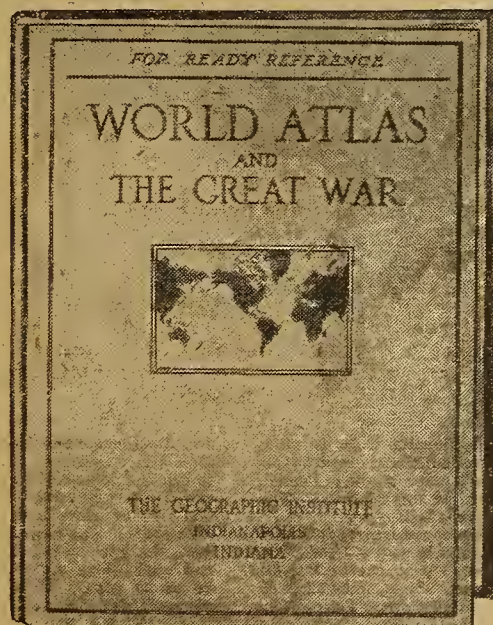
DIRECTIONS:—Mix and sift dry ingredients; stir in well-beaten egg; add hot water; beat well until smooth; pour into well-greased pan. The batter should be 1/4 inch thick, for if thicker, the cake will not roll nicely. Bake in slow oven. When baked, turn the cake on to a sheet of brown paper, well dusted with powdered sugar. Beat the jelly with a fork and spread on the cake. With a sharp knife, trim off all crusty edges, roll it up by lifting one side of the paper. The cake will break if allowed to cool before rolling. To keep the roll perfectly round, roll up in cloth until cool.

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No. 1—Gingham dress for the growing girl. Stripes are the style and stripes are shown here in blue, pink, and tan, with tan trimmings stitched in white. Sizes 6 to 14 years. The price of this dress is 98 cents



No. 2—A white dress for best. As embroidery is the style, this dress is richly trimmed with it and lace insertion. The material is organdie and the ribbon bow pink, blue, or white. Sizes 6 to 14 years. Price, \$1.98

EVERY woman does not have time to make all her own or her children's clothes. The editors of FARM AND FIRESIDE are therefore going to help her by showing four times a year ready-to-wear garments. There will be two issues in the spring and two in the fall, just when the styles are changing, when these ready-made clothes will be shown. They will be selected by Grace Margaret Gould, the Fashion Editor, and they can be ordered from FARM AND FIRESIDE. The next issue showing ready-to-wear clothes will be May 5th, and in that number there will be displayed clothes for the hot weather.



No. 3—The dress with the elongated Russian blouse is the style. This one is silk crepe de chine with a touch of brilliant embroidery. It comes in such fashionable colors as gold, plum, Belgian blue, navy, and also in the staples, black and white. The collar is white crepe de chine with silver braid trimming. Sizes 14 to 20 years. 34 to 44 bust. The price of this dress is \$10.95

No. 4—The fashionable waist is white cross-barred voile with the organdie collar and cuffs silk embroidered in Persian colors. Sizes 34 to 46 bust. The price of this waist is 85 cents
No. 5—A smart separate skirt of all-wool double-warped serge in navy or black. The front is in panel style, the back gathered at the waist. Sizes, waist 22 to 30 ins.; length, 36 to 42 ins. Price, \$2.95

No. 6—A one-piece dress suitable for almost any occasion. The material is linene and it washes to perfection. It shows the new sport stripes in white and rose or white and blue outlined with black. The tie is black satin ribbon, the buttons pearl, and the collar and cuffs white cotton poplin. Sizes 14 to 20 years. 34 to 44 bust. The price of this dress is \$1.98

No. 7—A silk and cotton poplin dress for afternoon wear. Its fancy pockets and frill-trimmed belt are special features. It fastens in front and is trimmed with colored buttons with white rims. It comes in navy and Copenhagen blue, plum, tan, and black. The collar is white-trimmed, with a stitched band of the dark tone. Sizes 14 to 20 years. 34 to 44 bust. Price, \$5.00

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Looking Your Best Things That Every Girl Wants to Know

By MARGARET DRUMMOND



BEAUTY is not altogether an accident. It may be cultivated, and every girl has it in her own power to be good-looking if not beautiful. Regularity of feature is of course not to be acquired if one has not got it to begin with, but it is possible to make a good deal of what we have.

Nowadays there are very few ugly girls to be seen, and it is safe to say that the ugly ones are those who are too lazy or too neglectful of their appearance to be anything else. If one keeps late hours, gets fat just because it seems too much trouble to exercise, neglects hair, eyes, and teeth, then the penalty must be paid. Curling the hair and piling the head high with puffs is not going to hide the fact that the hair is unbrushed and unwashed. Painting and powdering the face is not going to fool the world, and highly polished finger nails or the too lavish use of toilet waters only call attention to the fact that the hands and body have not been properly washed. All of these little devices deceive only one person—the one who uses them.

A clear, clean skin always indicates plenty of soap and water, frequently used. Well-kept hair, brushed every night to remove all traces of dust and stimulate the growth of the new hair which is constantly coming in on a healthy head, is a big help in making an attractive woman. Hands, feet, eyes, all play their part, and if they are taken care of daily it is pretty safe to assume that the owner is one of the women of whom people say, "Isn't she good to look at?"

There are certain fundamentals, which must be taken care of and kept in mind at all times. The city girl will say that if she only had the opportunity of living in the country she would not have the never-ending struggle with dust and grime that she now has. The country girl, on the other hand, thinks that if she only lived in the city she could have all the professional aid at hand necessary to make her beautiful. If we will conscientiously use the means we have right at hand (like so many other things in life, we do not recognize their value just because they "lie close about our feet") the way is not a hard one.

GOOD looks depend to a very large extent on good health and good temper. Much of good health depends on food, and if you are going to swallow your food in a hurry just because you stayed in bed a half-hour longer than usual, or because you have no help and you feel that the household tasks which fall to your lot are not going to be done on time, and the men may be in for dinner before you are ready for them, you will never be beautiful.

You will find yourself getting pimples which will be very hard to get rid of, or you will develop a most unbecoming redness of the face—on the nose and high cheek. Take time to eat your food, plan your work so that you can sit down and enjoy it, even if you did have to cook it yourself, and always remember to eat things that will not interfere with your digestion. If you are inclined to be bilious, avoid rich gravies, much candy, and cultivate a taste for fresh vegetables and fruit. Eat them in quantity for breakfast, dinner, and supper. Your improved appearance will be well worth the sacrifice you may think you are making in the beginning.

As to good temper, you can always

tell a good-tempered person at the first glance. Round lines and dimples are a sure indication of a pleasant disposition, while a long, wrinkled, drawn face indicates more surely than the spoken word cross, disturbed disposition.

No one escapes the worries of life, but do not "let them in." Try to shake the worries off, look on the hopeful and bright side of everything, and if at once no brightness appears keep on searching until finally a star comes through the gloom and conquers your depression. There is only a little space here to dwell on this particular subject, but some day I hope to talk at greater length on the value of schooling ourselves to take our troubles lightly.

So no matter what the trouble may be, rather let the guilty party go unpunished until conscience asserts itself than provoke unnecessary wrinkles and a disturbed liver, which is somehow the almost inevitable result of disturbed temper and has a most hurtful effect on the skin.

IT IS impossible to emphasize too strongly the importance of fresh air at all times. In the country this is much more easy to obtain than in the city, where one has to consider the close-up buildings, the fog, and smoke conditions. Sleep with the windows open, as wide as they can be thrown, and have covers enough to keep you warm without being oppressed by their weight. If you have a fear of drafts (doctors nowadays refuse to acknowledge their existence, and you will too when you have got used to the "indoor-outdoor" way of sleeping), rig up a screen for yourself which will keep the wind from blowing over you but will not prevent a free circulation all through the room. One of the very daintiest screens I have ever seen was home-made. It was nothing more than a clothes rack—the kind used on ironing day—painted white, the panels covered with bright chintz.

Have your sleeping-room in the quietest corner of the house and get plenty of sleep. The hours required vary with the individual, but the main point to remember is to get plenty of sleep. There are many times when we feel that we ought to do the night before some of the tasks which somehow belong to the morning, and we sacrifice the very best hours of the sleeping time by so doing. A little thought and careful planning of the day's schedule will obviate all necessity of this. I grant you that company will sometimes stay later than you expected, family meals will occasionally be delayed for hours, thereby throwing the whole domestic machinery out of gear, parties must be attended and given. These things all cut into our hours of sleep, and when this happens make a point of increasing the sleeping time of the next night so that the average is kept up.

While each woman has her own problems in life, there are many that are common to all, and what has helped one can in many cases help others. It will be my great joy to give my experience to you. In all cases, please give your full name and address, they will not be printed under any circumstances, and where a private reply is desired enclose a stamped addressed envelope. It will not be possible to give you the names of any toilet preparations, creams, etc., in this column. Where these are desired a stamped addressed envelope must be enclosed.

A Word About the New Department

IT IS not merely your right, it is your duty to be just as attractive as you can—in other words, to look your best. And that not only when you put on your best bib and tucker and sally forth to church or town or party, but every day in your own home for the benefit of those who love you best and look at you oftenest. To help you Farm and Fireside has arranged to have Margaret Drummond, who has had wide experience in all that pertains to beauty in the making, conduct a department in which she will give you advice on the care of the body, the hands, the skin, and the hair, and will answer in these columns the questions you may wish to ask her.—THE EDITOR.

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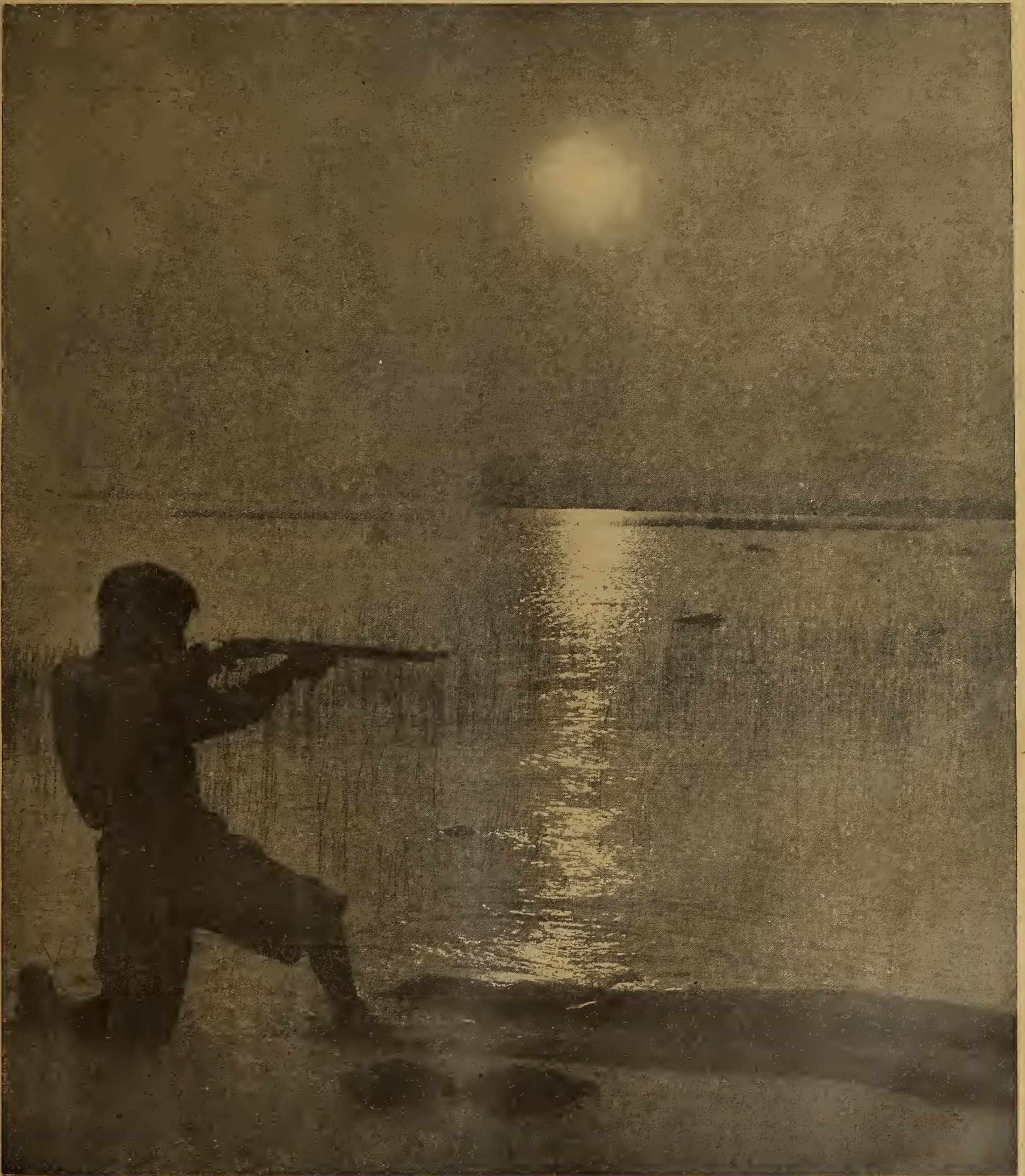
The National Farm Paper - Twice a Month

ESTABLISHED 1877

5 cents a copy

Saturday, March 17, 1917

Western Edition



PHOTOGRAPH BY JOHN KABEL

Hunting on the marsh by moonlight

CHANDLER SIX

\$1395

Choose Your Six From Among the Leaders

THERE are automobile dealers selling Chandler Cars in a thousand cities and towns. Naturally, however, there are a great many towns in which there is no Chandler dealer. It is possible that the town where you do your trading, your home town, has no Chandler dealer. Still, if you choose your six from the two or three makes which may be represented there, the chances are you do yourself a serious injustice. Make your choice from a broader field.

The resident of a city when he buys his car chooses from among many. He compares many. He knows and talks with the owners of many. Why shouldn't you choose from many?

Thousands Who Compare All Makes Prefer the Chandler

If you want a high-grade six-cylinder car why should you accept the six which happens to come with the line of some low-priced "four" which finds ready sale all through the country just because it is cheap? You shouldn't. The buyer in the city choosing a high-grade six does not choose a six that comes with the line of cheap cars. He chooses a six from among the leading sixes.

And we want to emphasize this fact—which to you is absolutely vital in your consideration of the choice of a car—that in large communities where buyers have the choice of absolutely all automobiles manufactured in this country—not the choice of two or three lines, but the choice of all lines—the Chandler Car is a leader.

In all the big cities, where men have the choice of all cars, the Chandler is a leader.

Chandler Wins Favor in Country Communities

And in hundreds of farming communities, in farming communities wherever introduced, the Chandler has sprung into immediate popularity. It has attained its popularity in country communities the same as in city communities for the same reasons of finer value for fair price.

Why deny yourself the opportunity of this greater value in a six, even though there may not be a Chandler in the nearest village?

The six that may be leading in sales there, because of the mere fact of local representation, possibly commands no recognition whatever in markets where men have the choice of all makes.

One of Our Dealers Will Demonstrate for You

And there is a Chandler dealer somewhere near you, so near to you at any rate that he would be glad to arrange for any kind of a demonstration you might desire. And near enough to you so that such incidental matters of service as you might require could be readily provided you.

The thing we ask you to do is to give yourself the advantage of knowing something about this great car which in four years has gone to an absolutely commanding position in the trade, and which this year twenty-five thousand buyers will pick as the six to be preferred above all sixes. We want you to know this car, and you owe it to yourself to know this car.

Chandler Claims of Superiority Are Easy to Prove

You should know all about the Chandler because the Chandler offers intrinsic value greater than other sixes for which you are asked to pay much more, and immeasurably greater value than other sixes for which you are asked to pay only a little less. Greater value in materials, design, equipment, and, above all else, in the dependable and enduring service of its marvelous motor.

You may say it is easy to make such a claim for the Chandler. It is. And IT IS EASY TO PROVE SUCH A CLAIM FOR THE CHANDLER.

What other make of car, at anything like the Chandler price, offers you a motor which has been developed, refined and perfected throughout four years of conscientious manufacture and not subjected to radical changes or experimental devices? *None.*

What other make of car, at anything like the Chandler price, offers you such a proven mechanism as the whole Chandler chassis? *None.*

What other make of car, at anything like the Chandler price, offers you all those features characteristic of the highest priced, highest grade cars,—Bosch high tension magneto; solid cast aluminum crank case, extending from frame to frame; big silent chains instead of noisy gears for driving the motor shafts; full floating and silent spiral bevel gear rear axle and light running annular ball bearings in transmission, differential and rear wheels? *None.*

What other make of car, at anything like the Chandler price, offers you more beautiful and comfortable bodies than the Chandler? *None.*

Chandler policy has always kept the Chandler price low. Relatively it is lower today, when so many prices have been inflated, than ever before.

We shall be glad to send you a Chandler catalogue and all possible information about the Chandler car and to give you the name and address of the Chandler distributor or dealer nearest to you

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FARM and FIRESIDE

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No. 12

Automobiles I Have Owned

Good Care and Timely Repairs Keep a Car in Traveling Trim

By W. V. RELMA

WHEN I decided to buy a car some years ago, accurate information regarding automobiles was not so easily obtainable as now. I spent a good many weeks gathering information and sent for various catalogues, which I studied with great diligence.

One catalogue painted a very alluring picture of a big, powerful car. It had deep, thick, luxurious upholstery, long, easy springs, large, easy-riding tires, and dash and rear-seat lights. The car had a powerful motor that would propel the car at the speed of an express train. It could also "loaf along on high" at the walking speed of an average man. There was also a great deal of description about gear ratios which I did not understand, and also timers, magnetos, force-feed oilers, splash systems, etc.

Another booklet painted an equally attractive picture of a lighter car and had a great deal to say about the benefit to tire life. Very strong claims were made about the car's ability to negotiate roads that would completely subdue a heavy car. There were also impressive statements about the number of miles per gallon of gasoline that could be made.

My purse had a great deal to do with the selection of a car, and I finally decided upon one of light weight. I bought a car that was well enough built, but I made one very troublesome mistake: I did not select a good factory. The company back of the car was a new untried organization, and it soon got into difficulties, financial and productive.

Select a Standard Make

IHAD an accident one day when starting upon a long trip and broke a peculiarly constructed part. I had to push the car into a near-by yard and leave it. It stayed there nearly two weeks before I managed to get the required part from the factory. It is not very remarkable or unexpected for some part of a car, as with any piece of machinery, to go wrong, but it is very disagreeable and inconvenient not to be able to get the part from the factory or service station promptly.

This particular factory finally went out of business and the repair-parts business was purchased by a machine shop which did not give any better service, and which overcharged owners for the parts ordered.

So one of the best things to buy with an automobile is a good manufacturer. I've since seen this car in the possession of several different owners none of whom seem to be very proud of its ownership or its merits as a self-propelled vehicle.

My next purchase, with my primary auto lesson in mind, was a similar type of car but one which was made by a well-established factory. I used this one miles upon miles. I paid a fair price and got a satisfactory car. I used it under any and all circumstances, in all kinds of weather, practically 365 days in the year. I made long trips and drove it hard. It was used about as roughly as a car could be used, yet I spent but very little for repairs. In fact, I did not spend enough.

I mean by this that I did not have enough upkeep repairs made, and those that I did have were not made soon enough. A dollar spent to-day may be better than five dollars spent next week. It's a good deal like dental work.

When at last this car became so shabby that my wife

refused to ride in it any longer, I sold it to a man to use for a light delivery.

He used it for a year or so and sold it to a traveling salesman, who is still using it to visit country stores. I drove it over 60,000 miles myself, and so I think when the junk man finally tows it away it is entitled to a deserved rest.

I next bought a touring car for \$1,200. By this time I had several standards that I judged a car by. I was determined that the car, for its weight, should be economical of gasoline and oil. This I assured myself was so not merely because the agent said so, but because individual owners of the same model of car said the same. I also wanted a car that was built for service as well as good appearance and which would later have an excellent second-hand value.

This automobile had to have easy-riding qualities because I intended to take my mother for a ride frequently, and she could not stand being jolted a great deal. For the same reason the seats had to be shaped so that they were comfortable for long drives. Such a seat can be determined by experience only, because a seat that may seem very good on a short drive would be uncomfortable for long trips. In addition I put on shock absorbers.

I have frequently driven over 200 miles in a day and it has been very satisfactory. The matter of miles to a gallon of gasoline depends on the driver as well as on the car. During warm weather I averaged close to 20 miles per gallon with this car. Yet my brother, who sometimes drives it, seldom gets much over fifteen. This is because he likes to speed the car beyond its most economical running speed, and because he is more nervous in his driving and races the motor a great deal more, which uses gasoline rapidly.

I have found that the tires for this car (33x4 inches), which cost around \$25 apiece, gave very good service. Some of these gave as high as 8,000 miles, and others did not exceed 3,000. I followed a system of buying two new tires for the rear and transferring the others to the front after reinforcing them with inner liners. Sometimes I got remarkably good



Going to the fair by automobile combines comfort and pride of ownership with the usual pleasures of the day

service from tires so reinforced, and for the sake of appearance frequently discarded those with ragged treads before they were completely worn out.

I thoroughly believe in keeping a car in good repair. It pays to use nearly the best of everything—good spark plugs, good gasoline, good grease, and plenty of it. Only about 15 per cent of the cars get anywhere near enough grease.

Once during very cold weather I bought some gasoline from a supply station where I had never bought any before. I let the car stand while I transacted some business, and when I had finished I was in a hurry to get home. It started easily, but I was able to get home only by short runs; that is, I could run a short distance and then the motor would stop, but after standing a moment it

would allow me to start up and go on. When I got home I gave it a thorough looking over, and discovered that the gasoline line was partly stopped up. I cleaned this out and got along pretty well the next day, but the day following I had more of the same experience. Then I went after the trouble right and cleaned ice out of the gas line, out of the carburetor and the sediment bulb of the gasoline tank. I bought no more gasoline at that particular filling station.

This car cost me on a basis of 5,000 miles per year about \$240 per year for the upkeep. Here are average figures: Tires, \$100; gasoline, \$90; oil, \$10; tubes, \$10; grease, \$5; miscellaneous, \$25. Total, \$240.

This averages \$20 a month. If insurance had been carried, the amount would have been higher. I have not included depreciation, as that depends largely upon the individual owner and the care he gives his car, also on length of service that he desires before he sells or trades.

Usefulness Exceeds Expectations

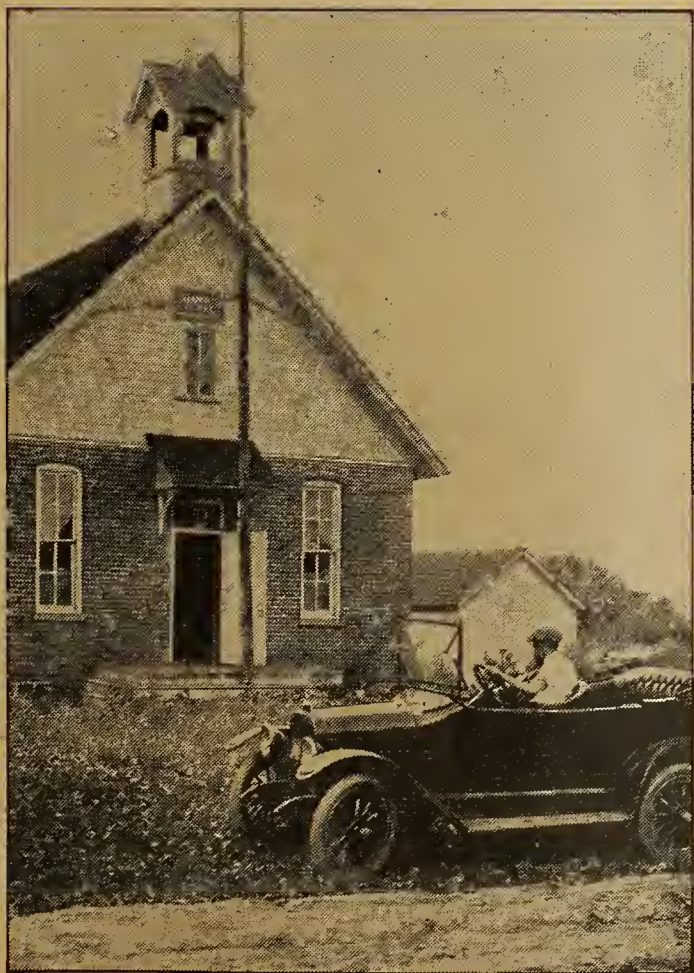
IKNOW of one car that cost \$1,000 seven years ago which is still in excellent condition. Although an old model, it is still worth at least \$150. This would be a depreciation of about \$120 a year. On the other hand, the first car I owned had a depreciation of about \$400 in the first six months.

Now in the case of the \$1,200 touring car, I figure the depreciation at \$400 the first year, \$250 the second year, and \$150 the third year, so that would average \$260 a year.

A friend of mine has a similar car, and his operating expense is not nearly so great. He uses his car considerably during the summer months, but not at all during the cold weather, and he takes very few long drives. His operating expense averages about \$125 a season, and of course depreciation is correspondingly low. A great many people get a car and feel at the beginning that 1,200 miles a year is at the outside as far as they would drive, but they generally find that they go over twice that far.

There are so many places that are easily and quickly reached by a car. There are so many pleasure jaunts to take and so many ways that a car can be used in business. Business that would be transacted more or less unsatisfactorily by phone or letter can frequently be handled better and more quickly with a car. It is surprising how much practical business service a car will give, as well as opportunities for pleasure.

A majority of drivers would get much better service from their cars if they would study them more carefully and keep them well lubricated and adjusted.



One practical use of a car is to take the children to and from school when the distance is considerable

The New Farm Helper

Letting Electricity Light Your House and Do Your Work

By RUTH M. BOYLE

NEAR the Mad River in southern Ohio is a little farm run by a man and woman who used to live in the city—Mr. and Mrs. Joseph I. Schaeffer. Some years ago Mr. Schaeffer was working in a foundry. His work was tiresome and confining, but he liked the city and city conveniences, and so it was only when the doctor insisted that he get more fresh air and outdoor life that he made up his mind to move to the country. He and his wife bought a small farm two miles from town, put up some greenhouses, and began raising flowers and vegetables and doing a little general farming on their new place, which they called Mad River Gardens.

From the first they liked the freedom of country life, they enjoyed the work, and were successful from a financial point of view. But they missed the comforts of city life, and at once began to plan means of adding them one by one as their means justified it.

A boiler was of course necessary for the greenhouses, and so their home was comfortably heated. They also immediately installed running water. Even then, however, Mr. Schaeffer was not satisfied. He talked about electricity and what might be done with small motors to lighten his work about the farm.

"I didn't see any need for it when he wanted to install a small electric plant on the farm," said Mrs. Schaeffer when I visited her recently. "I didn't see the use of tearing things up and installing electricity. Then we found we had to have some kind of a pump to pump the water, and when I saw how well a small motor would take care of this I gave in. I'm sorry I held out so long now, because there isn't any comparison between the old way and the new. Let me show you what we have done."

In a little entry way between house and greenhouses, installed in very close quarters, she pointed out the plant, with the storage battery, consisting of sixteen glass-jar cells, on shelves above it. The small single-cylinder engine and the generator are directly connected, and thus take up very little space.

Her young son, thirteen or fourteen years old, was charging the batteries. "He usually takes care of the plant," she told me. "He is interested in electricity, and since there is no danger from shock or anything of the kind, my husband and I like to have him do it."

"Isn't it very expensive, though?" I asked.

"We haven't been able to figure out the cost exactly yet," she explained. "But we are certain that, including interest on investment, depreciation, and everything, it won't be more than what city people pay for their electricity. During the last two weeks we used about 55 cents' worth of kerosene for generating, and that included charging a battery for a neighbor, for which we charged him a dollar."

The ingenuity of the Schaeffers became especially evident when I was led out to an enclosed passageway between the house and greenhouses, where the washing machine was set up ready for use.

Now Use an Electric Motor

"FORMERLY we used a small and old gasoline engine, situated in this shed," said Mrs. Schaeffer, "where we could take out a panel in the wall, run a belt out to the pump, and pump the water when the windmill wasn't working. Inside, I could set up a washing machine and a corn grinder and use the same power. As soon as the electric plant was installed, we bought a ½-horsepower motor and installed it on a shelf above the old engine. We took out the connecting rod and the piston, and connected the motor to one of the fly wheels with a belt, and I am using the crank shaft and fly wheel of the old engine as a jack shaft from which to run the pump, washing machine, and corn grinder."

The lights on the Schaeffer place are well distributed, and there are plenty of them in house, barn, work shed, and greenhouses. Mr. Schaeffer says that the one that gives him the most comfort is the one before the boiler in the cellar, which has no window.

"My boilers eat up about two carloads of coal during the winter in order to keep my greenhouses warm," he asserts, "and you may know I am down in that cellar several times every day and night to fire up."

Inside the house it is apparent that the Schaeffers are getting the most out of their electricity. Many farmers think simply of having the lights when they

install a plant, but its use as power appealed particularly to these up-to-date farmers.

"My older son had worked as lineman in town for a year and a half, and he wired the house. He insisted on putting in extra connections and on having several lights on a chandelier in the dining-room and sitting-room instead of just one drop light." Mrs. Schaeffer opened the door to the cheerful living-room.

"I told him I would never need an electric iron because I had a good gas iron, which worked perfectly. But he insisted on putting in a good connection in a convenient spot in the kitchen right over my ironing board. Someone gave me the iron for a present, and none of us would go back to the gas iron. In the same way he insisted on putting in connections in two of the rooms for the vacuum cleaner, and later I got one. It certainly pays to plan wiring for future needs."

The vacuum cleaner she uses, and which is shown in the picture, is very light, so that it can be carried from one room to the other as easily as a broom. Since the house and the greenhouses are almost directly connected, a great deal of dust is carried onto the carpets, but the vacuum cleaner is so efficient that the house is always as neat as a pin.

Mrs. Schaeffer herself is interested in the work with the plants, and so a great deal of her time is spent in the greenhouses. She therefore has a young woman to help her with the housework. Although most farmers in this section have had a very hard time getting help for the house this year, the Schaeffers have had no trouble. Their house is so convenient and they have so many labor-saving devices, that the work is exceedingly light compared to that on many farms.

I asked them if they had an electric fan, and they smiled.

That was last month when the thermometer registered several degrees below zero, and it seemed impossible that anyone would ever have to worry about being too warm.

"No, we haven't one," said Mrs. Schaeffer, "but of course we can run one just the same as the other electrical appliances if we get one."

I think they will get one sooner or later. A fan keeping the air moving in a hot kitchen is a great help in summer when the cooking is heaviest, and a breeze in the dining-room makes summer meals more enjoyable.

The reading lamp on the table in the living-room had been an oil lamp. Mr. Schaeffer transformed it by taking off the upper part and the solid rod that ran down to the base, replaced the latter with a small piece of pipe and ran the wires up the pipe to an ordinary socket on top. The old oil lamp had been a high one, not especially adapted for reading, but when the oil bowl was removed and the shade thus lowered several inches, it made a fine reading lamp.

Both Mr. and Mrs. Schaeffer appreciate the wife, Mr. Schaeffer electricity has made in their work. When I was chatting with the wife, Mr. Schaeffer came in and said that he had just ordered an air compressor to use in pumping up their automobile tires.



Around the reading table in the evening the family enjoy the fine light most

"Electricity has made me lazy," Mr. Schaeffer remarked with a smile. "I want everything done by power."

But the thing that they value the most is the change which it has made in the attitude of their sons toward their home. The boys have the feeling that their house is modern, and they like to have their friends come out to it.

Instead of using only one room in the evening, the whole house is at their disposal. The young people can have a good time in one room while the older people talk and read in another. Their neighbors like to visit them because their house is bright and comfortable, and so their own pleasure and contentment is being communicated to their friends.

A Farm Workshop

By JAMES BLAINE

THE workshop on my farm has enabled me to employ my time more profitably in seasons when my other work has been light. By inspecting and repairing my tools and machinery I have prolonged their life.

The upkeep of my tools and implements has been the big economy. Many persons will buy an expensive piece of machinery, use it one season, and then leave it exposed to the elements during the winter. When they want to use it again it has lost from 10 to 25 per cent of its efficiency. Proper housing of the tools and implements will prevent this depreciation. Although I find the question of housing is important, it is equally important that the defective and broken parts be repaired.

To make these repairs it is necessary to have a workshop, unless you take everything to town to be repaired. This workshop doesn't need to be very large. It should be sufficiently roomy to allow for a work bench, a stove, and an amount of floor space large enough to accommodate the machinery or tools while they are being taken apart and reassembled.

The equipment in my workshop isn't elaborate. I have a small emery grinder and a few of the common tools that a carpenter or a blacksmith requires, with some paint and a brush. While I have a portable forge and an anvil, and they have proved good investments, they are not absolutely necessary.

It is a good plan to have system in the workshop. I have a place for everything, and keep everything in its place. Every tool or implement is examined for possible defects when I have finished with it for the crop season. I give all edge tools and working surfaces of machines a coat of heavy oil to protect them from rust. The loose bolts are tightened, or replaced if lost. Every broken part is repaired or a new one is ordered.

For Spring Flowers

By W. S. BLAKE

IF YOU desire early blossoms, now is the time to sow the seeds of flowering annuals. The plants may be started in the house or a hotbed. Sow seeds in shallow boxes, but provide drainage by putting one inch of coarse material in the bottom of the box before filling it with finer soil.

Seed should be dropped into shallow drills rather than sown broadcast, as it is easier to cover seed to a sufficient depth to assure proper germination, to keep varieties separate, and to transplant.

When the plants have two to four leaves, they should be transplanted to other boxes and set far enough apart to insure steady growth. Here they may be left to grow until time to set them outside. In case seed is sown in the house, plants should be exposed to the sunlight in a south or southwest window.

Care should be taken in preparing the flower bed if good results are to be expected. A heavy coating of well-rotted barnyard manure should be applied. This should be spaded in deeply as soon as the soil will work up freely, and the surface should be raked and made smooth. The beds may then be planted according to plans made before the seeds were sown.

The most common type of flower bed is the circular one. This has many possibilities. It is hardly necessary to say that the tallest growing plants should be placed in the center, the shortest plants making the border. Many types of flower beds are used, particularly those made in the form of a star, or a crescent.



Lots of dust is carried into the house, but the electric vacuum cleaner soon banishes it

More Service From Tires

How to Reduce Expenses and Add to Motor Pleasures

By B. D. STOCKWELL

SECURING delivery of my car one Saturday noon before Easter, I drove out from town to my farm, a distance of six miles over roads deep with mud. That evening I took the machine out again on a matter of business and, trusting to the newness of the tires, drove forty miles in a beating rain, this without having learned to change a tire, without an extra tire, tube, patch, or cement. Like some other car owners, I had decided to put off the purchase of sundries "until I knew exactly what I needed," though if cross-examined I should have admitted a temporary shortage of funds, following the purchase of the car, gasoline, and oil.

Luckily, nothing happened, but as a safeguard against possible punctures I purchased a few cementless patches the next day. This gave me a feeling of security that was more pronounced shortly after when a stranger knocked at my door. He explained that his car was down the road a quarter of a mile, but that he had seen my garage and thought I might be able to spare him a patch to repair a puncture. He added that he had driven machines for the past six years and was now on his way to town to trade his old car in for a new one. He had left his tire-repair kit at home, since that was not included in the trade.

I gave him a patch and he went off grateful. His predicament showed two things which I realized more completely later, as you shall see. They were: First that experience is of little value in motor matters if you have no materials to work with; and, second, that taking chances sooner or later means trouble and long, annoying delays on the road.

As my car is equipped with demountable rims, with an extra on a rear holder, I at once decided to carry a spare tire fully inflated and ready for use. It so happened that a "friend" had a "slightly used" casing of the right size that he would sell for half price, also an inner tube with a dozen patches on it that could be bought at a similar "bargain." As this tire was to be only an extra, I decided to take a chance on it and congratulated myself on saving \$14.

For weeks I enjoyed beginner's luck, and in trips into all parts of the surrounding counties forgot about the wonderful anatomy of my car. Tire troubles were remote from my thoughts till one beautiful Sunday

afternoon in May I passed a great many cars drawn up at the side of the road with their drivers busily engaged making tire repairs. A veteran motorist who was with me said that most of the unfortunates probably belonged to the class of drivers who imagine that sticking a cementless patch on a tube makes a permanent repair, and that in using their cars this afternoon for the first time in the season they had found that many of the patches had dried out during the winter and now slipped out of place or came loose. Soon after I had my first puncture, and decided to have a vulcanized patch put on the tube, which, like a weld in metal, would make a permanent repair, though at the trifling cost of 25 cents.

But, alas, in coming to town the next day with a merry party, "pop, pssst" went that "slightly used casing" which I had put on after the puncture, and we were down on the rim with a blow-out that proved to be two inches long in the casing and three inches in the tube. Patches were of no avail, so we went the remaining three miles to town on the rim, clattering over the brick pavements like a wagon filled with old iron.

Preparedness Prevents Many Delays

PEDESTRIANS smiled, but passing motorists wore a serious, reminiscent look. Reaching the garage I found my extra tire ready, and when it was on the wheel I appreciated for the first time the buoyant resiliency of a pneumatic tire which makes possible the speed, durability, and easy-riding qualities of motor cars and motorcycles. Fire-engine trucks and others intended for high-speed duty are invariably equipped with pneumatic tires. The great centrifugal force of high speeds soon ruins a solid tire.

Then and there I invested in a new non-skid casing and a high-class tube to go with it. Since then I have maintained a high class of tire equipment and have never had tire trouble worth mentioning. My casings do not equal the record of the famous bus tire that gave 44,115 miles of service, but I will relate how I get them to carry me from 5,000 to 7,500 miles over all kinds of roads before I consider them worn out. To finish the history of that "slightly used" casing that I had considered a bargain, let me say that it blew out three times in the first three months of use, and from the standpoint of service was the poorest tire I ever had. Friends who have purchased

E-W

the class of tires known as "seconds" as an experiment report prematurely worn treads, unexplainable rim-cutting, and all sorts of annoying troubles in addition to low tire mileage.

My most economical tires are fresh new tires in the medium-price class. I have tried a few makes of expensive extra-high-quality tires that give extraordinary mileage under favorable conditions, but I receive the best service in proportion to the cost from the medium-priced tires. Perhaps these facts explain it: I am obliged to drive considerably over very rough roads, some of which have been surfaced with crushed stone and are consequently hard on tires. And just as a barbed-wire fence will rip a \$50 suit of clothes as quickly as it will a \$35 suit, so I find that any of the commonly advertised medium-priced tires will give almost as good mileage as the expensive tires, and if I strike a bad snag or a sliver of steel on a railroad track the depreciation in the value of the medium-priced tire when repaired is not so great.

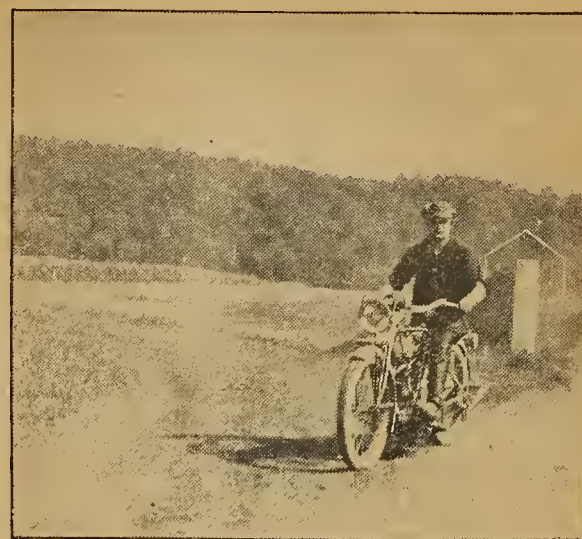
My best tire insurance is a good mastic for filling tread cuts. Last season I used a dollar's worth of these fillers and added a thousand miles to the useful life of each tire, a total of \$20 worth of extra tire service. Nor was the work of looking after tread cuts laborious. Just before a long trip we made a social event of getting the car in perfect order. While I looked after the inflation of the tires, tested the alignment of wheels, oiled the springs and filled the grease cups, my wife and friends who were going on the trip with us filled the tread cuts. So that with many hands working we seldom were more than half an hour, and later enjoyed the trip more thoroughly

because we knew everything was in good condition.

Except for jaunts of several days' duration, I seldom carry more than one extra casing, but always at least two extra tubes.

Casings are heavy and bulky, and by having several blow-out patches of various sizes I am sure of getting home. A good pump, tire gauge, rubber cement, tire irons, and a few extra valve stems complete the equipment. While all these things may be had nowadays even in small towns, or may be borrowed from passing motorists, I prefer to carry them with me and be independent. Their possession also gives a most comfortable feeling when traveling strange roads at night.

The question of inflation is very important, since more casings are ruined by using them underinflated than from all other causes combined. To test the amount of air in his tires, one may use either a tire gauge or tire calipers. The usual pressure recommended for automobile tires is 20 pounds of air for every inch in diameter. In the case of a four-inch tire this means a pressure of 80 pounds. But considering the comfort of riding, also the greater cushioning effect on the mechanism of the car, I have concluded that the best all-round results are secured by an inflation of 10 per cent less than the recommended pressure. Seventy-two pounds' pressure in four-inch tires is sufficient to keep them well rounded. When good tubes are used the pressure seldom drops



Pneumatic tires permit high speeds; 20 miles an hour or more is injurious to solid tires

more than a pound a week, and I pump them up about every six weeks, not forgetting my extra tire in the rear.

For the person who owns only one car I doubt whether an extensive repair outfit pays. Rubber is peculiarly sensitive to heat and the action of chemicals, consequently it is best handled by those who make a business of it. This applies chiefly to the repair of casings. But it need not prevent an owner from forming his own conclusion as to whether a casing is worth repairing. Faithful old tires that begin to bulge, or that look pretty well worn out all over, are scarcely ever improved by the repair man. And by bolstering up the weak places with blow-out patches or an inner liner one can get a surprising amount of service. I still have one old casing that looked worn out ten months ago after 7,500 miles of use. It has never cost me a cent for repairs, but with three blow-out patches in it, it is still in service. I expect it will last several hundred miles more.

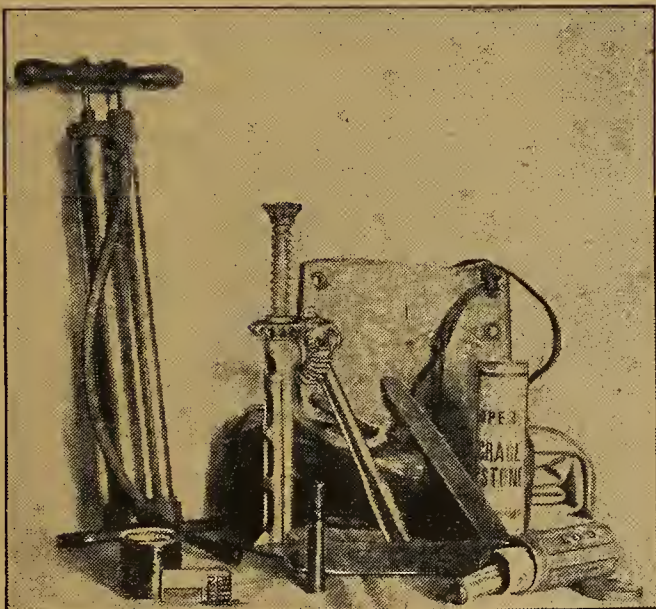
Old Tubes Develop Slow Leaks

OF COURSE there are drivers who in the spring drive up to a garage on the tires they used the previous season, and order all of them taken off and new ones put on. The other extreme is the man who ruins the satisfaction of motoring by worrying along with decrepit tires, especially old tubes, for few things are more annoying than slow leaks. I make a point of using good tubes throughout and only one old casing at a time, and that on a front wheel, where it is most easily changed.

Non-skid casings have been slightly more serviceable, cost considered, than smooth casings. The projections on a non-skid protect the body of the tire from tread cuts for a long time, usually a matter of a couple of thousand miles. Besides, there are times when I wish to cross a field that is soft from rain, or to climb an exceptionally bad hill that is loosely surfaced. Here non-skids on the rear are a comfort not easily measured in dollars and cents.

On one occasion when changing tires about I put a nearly new non-skid casing on one rear wheel and a smooth tread tire on the other. Later, when driving, the rear of the car developed a peculiar waltzing motion at speeds over 30 miles, especially when the back seat was empty. Since then I have heard others report similar experiences, and one man was on the point of disposing of his car because it made him "seasick." But when he put tires having a similar tread on both rear wheels the trouble at once disappeared.

By giving my tires the reasonable care outlined, I find that delays on the road from all tire causes now average about one in a thousand miles. Nor is there any limit to the originality which tire repair may inspire. On one occasion a motorist friend, who had carelessly come away without patches, requisitioned a piece of chewing gum from its diligent owner. He used it on a puncture when the last inner tube went down, and reached home, a distance of 20 miles, without any perceptible loss of air.



For average needs: pump, jack, tubes, patches, gauge, tire irons, outer shoe, valve stems, and cement

tant, since more casings are ruined by using them underinflated than from all other causes combined. To test the amount of air in his tires, one may use either a tire gauge or tire calipers. The usual pressure recommended for automobile tires is 20 pounds of air for every inch in diameter. In the case of a four-inch tire this means a pressure of 80 pounds. But considering the comfort of riding, also the greater cushioning effect on the mechanism of the car, I have concluded that the best all-round results are secured by an inflation of 10 per cent less than the recommended pressure. Seventy-two pounds' pressure in four-inch tires is sufficient to keep them well rounded. When good tubes are used the pressure seldom drops



When tires are kept well inflated, they are best able to resist punctures and endure hard service. Frequent testing of the pressure and prompt attention to tread cuts aid in increasing tire mileage

The Only Car

That Does Those Things Is

Hudson Super-Six

The Super-Six is the only car that ever went 1819 miles in 24 hours.

It is the only car that ever went from San Francisco to New York and back in 10 days and 21 hours. In that one round trip it twice broke the ocean-to-ocean record.

At Pike's Peak, a Super-Six Special defeated 20 great rivals, all specially built for hill climbing. It made the best time in the world's greatest hill-climb.

It holds all the speed records for stock touring cars, and the records for quick acceleration.

Note What That Means

You say you don't want a racing car. We know you don't. You will never, perhaps, use half the power or speed of the Super-Six.

But mark that this motor is a small, light, simple Six. We have added no size or cylinders. We have taken a light Six and, by this invention, increased its efficiency 80 per cent. And solely by reducing friction, which destroys the motor and wastes its power.

We Did Just This

The Six-type motor had great limitations. Despite all perfections, much vibration still remained. And vibration causes friction.

Some engineers, including the Hudson, were testing Eights and Twelves. They felt that twin-type motors might solve the friction problem. The trend was away from Sixes.

Then Hudson engineers brought out this Super-Six invention. It is a Hudson invention, patented by Hudson. In this new-type Six they obtained all the

efficiency and endurance sought for in the multi-cylinder type and they did this without adding cylinders, complications or weight.

All in Endurance

All the Super-Six records—for speed, hill-climbing and long-distance—were won by this motor's endurance. They mean that motor wear and friction are reduced to almost nothing.

By excelling in these feats, it proved that this motor will outlast any other type.

That is what you want above everything else. You want less wasted power, less wear, less friction. That means, of course, supreme performance. But it also means supreme economy.

What You Can't Afford

Some men will say, "I can't afford a superb car like the Hudson."

But you can. All this beauty, luxury and superlative performance will cost you less than many a car without them.

The Super-Six invention, in all probability, doubles the life of a motor. It saves the power which was wasted in friction. And this year we add a new gasoline saver which saves a great deal more.

No other fine car gives such value as the Hudson. No other car has a motor which compares with this. A higher-quality car is impossible. Yet note how far the Hudson undersells many cars that it out-performs.

Go see and prove this car. It is now the largest-selling car above \$1200. And the saving shows in the Hudson price.



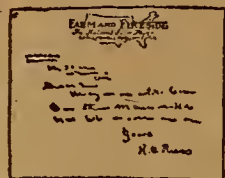
Phaeton, 7-passenger, \$1650
Cabriolet, 3-passenger, 1950
Touring Sedan 2175
Limousine 2925

Town Car \$2925
Town Car Landaulet . . 3025
Limousine Landaulet . 3025
(All prices f.o.b. Detroit)

HUDSON MOTOR CAR COMPANY, DETROIT, MICHIGAN

The Editor's Letter

Securing Counsel on Intimate Problems



WE HAVE on our statutes laws which authorize us to consider our houses as castles, which we may lawfully defend against intrusion. This gives the stamp of legal approval to the privacy of the home. We are coming also to believe in the separate privacy of each one in the family. In the ideal home the children have separate rooms, the father has his "office" or "den" and the mother is gradually being upheld by public opinion in her desire to have a room where she may rest an hour or so during the day, undisturbed by the children and the demands of the household.

A farm family living on 160 acres, with the nearest neighbors a quarter of a mile away, can know but little of the annoyance of living in the city with a dozen neighbors constantly within sight and hearing. They can look into your windows up-stairs as well as down. They can smell your dinner, watch your visitors come and go, and scrutinize the contents of your clothesline. Farm homes have few of these "city advantages," though I doubt whether country people fully appreciate the privacy of their homes until they go to the city to live.

But there are other kinds of privacy. Professional men require a mental privacy to do their best work. Statesmen facing a crisis shut themselves in a room where they can think without being disturbed. And still another kind is the privacy of the heart which I want to talk about with you candidly.

We are all aware that there are such things as matrimonial agencies, and some of them do a good business. Suffice it to say, however, they are not regarded with very much respect by the general public, nor do the better class of publications print the advertisements of such agencies. We also find matrimonial columns in some newspapers and magazines. Such columns are read largely from morbid curiosity or amusement, and the average reader finishes such columns with more or less disgust for himself and contempt for those who have sought public advice in their heart problems. A good many people have written me about their matrimonial difficulties, though in justice to these people I will add that in most cases farm problems have been involved in the questions to be solved, and I have been glad to give them every assistance and advice possible.

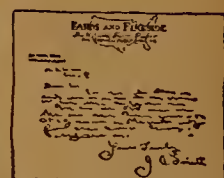
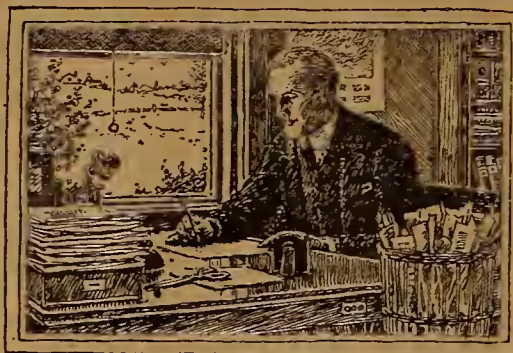
The ability to support a wife is an important thing to consider, and nearly all who ask for counsel either live on farms or expect to. But occasionally someone reveals his intimate thoughts in a way that leads me to believe he has not handled his problem with as good judgment as he might have used. And their apparently desperate appeals for counsel often reveal that they have previously consulted others and failed to get the help and comfort they crave.

HERE is a note from a woman which is so frank and open that I can publish it without giving offense. In fact, it was written for publication, as it is addressed to FARM AND FIRESIDE subscribers rather than to me.

"Dear Editor," she writes, "I hope you will give your readers a chance to answer a question which I cannot decide for myself. What I want to know is, Do you think a man of fifty-one years too old for a woman of thirty-two? Some tell me I am making a mistake, but I love him so much it seems I can't give him up. My friends say he is too old to know his mind, and is apt to change it at any time and blame me for marrying him. Is that so?—AN OLD MAID."

It is a pitiful appeal. "Friends" she calls those who have advised her. Friends indeed! Busy-bodies who attempt to judge the mental capacities of a man of fifty-one (practically the prime of life) and poison the love of a woman by doubts—such friends insult the meaning of friendship, as I know it.

While we pity this mature woman for her lack of personal decision, let us keep in mind that her trouble was largely brought on by discussing the state of her affections too freely. Even if she did not openly court the advice of



others, she lacked the courage to bid them hold their tongues in matters which were none of their concern. And yet, we

can pardon the weaker sex.

In the case of men pity does not flow so freely. On my desk now is a closely written two-page letter from a man who has had a college education, special agricultural training, and who has traveled considerably. He is a bachelor living in the West. And as he simply asks that his name be withheld, a few general remarks are permissible.

HIS problem is to decide between two women who, he indicates, are both ready to accept him. One is "worth about \$30,000," but "will not live more than about fifteen or twenty years." The other is "strong, pretty, and a perfect Venus," but has no money. He discusses their accomplishments, religions, and their families. He then talks about children, possibility of remarriage, his mother's preferences and also his own. He is able to support a wife, but cannot decide for himself, though he says he loves one more than the other.

I cannot advise this man what to do other than to decide his own personal affairs. My ideas about marriage, I am sure, would not agree with his, judging from the self-interest shown.

If a man wants to make a business proposition to a woman, offering her his name, protection, and a home in return for her accomplishments, companionship, and bank roll, he has the right to do so. There are such business marriages, though I have never known them to be particularly happy.

To others who may be considering getting personal advice from sundry sources, I want to say just a few words: The chances are you will be disappointed, if you try. A person who does not know you intimately is hardly qualified to judge, and the advice is likely to be so inaccurate as to lead you astray. But even were he qualified by a full knowledge of what he considered the important facts, anybody with a reputation to sustain cannot afford to venture an opinion if he values your friendship.

I happen to know a case in which a young man asked a third party for advice and was assured, among other things, that two could live as cheaply as one. He went ahead and married, and the marriage has apparently turned out very nicely. But the young man soon learned that the "two as cheaply as one" proposition was a myth, and he has never fully forgiven his adviser for this inexcusably poor counsel.

Now call to mind a dozen of your acquaintances and compare your personal attitudes toward each of them. You will find that you have the greatest respect for those who, though constantly seeking and receiving expert business advice from many sources, keep their intimate personal affairs to themselves.

But at times when the conflict of emotions surges so wildly as to demand an outlet for the feelings, go to someone whom you know has a true and close personal interest in you. Usually this is a mother, a father, a sister, a brother, a near relative, or an intimate friend, tested by years of proved devotion. This is the best way to get help in intimate matters without humiliating yourself or incurring contempt or pity, which is nearly always the case when you ask mere acquaintances.

At the same time consider that human beings were given reasoning power to make use of, and any worthy girl whom you considered marrying would hide her face in shame if you asked her, not from the true feeling of your own heart, but on advice solicited from someone else.

And after marriage also let us remember that human nature is still the same as before. The disclosure of intimate matters to mere acquaintances brings disrespect and sometimes unpleasant gossip, whereas all people admire the man or woman who settles his own personal problems and closely guards affairs of the heart.

The Editor

Farming and Prohibition

Comment on an Important National Situation

By JOHN COLEMAN

AT GLANCE at the "wet" and "dry" map on this page is enough to show the sentiment of the principal agricultural States on the liquor question. To be sure, it is a legislative map showing how the various States have voted rather than their present freedom from saloons. For instance, in Michigan, South Dakota, Nebraska, and Montana, all of which voted dry last November, the liquor interests have been given from six months to two years in which to close their affairs. So that at this time the United States is not actually as dry as the map indicates, except in sentiment.

It is not surprising that the richest agricultural States are among the most prominent in banishing booze. Years ago popular sentiment caused the disappearance of liquor advertisements from the leading farm papers of the country, and of late the farmers' vote is becoming more and more intensely feared by the liquor interests when state-wide prohibition or even county option is before the voters.

January, 1917, was an important month in the program of national prohibition. On January 8th the U. S. Supreme Court upheld the Webb-Kenyon law. The following day, January 9th, Congress voted the District of Columbia dry. Both of these actions were taken by the two most conservative and legally trained bodies of men in the country—the Supreme Court and Congress.



This map shows how the people of the United States stand on the liquor question. White indicates dry territory, and black wet

Outstanding points of interest in the prohibition situation to-day are briefly these:

Twenty-two States and the District of Columbia have been voted dry. These are Alabama, Arizona, Arkansas, Colorado, District of Columbia, Idaho, Iowa, Kansas, Maine, Mississippi, Michigan, Montana, Nebraska, North Carolina, North Dakota, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Virginia, Washington, and West Virginia.

Of the 2,543 counties in all the States of the Union, only 355 are wet, and some of those are only partially wet. Most of these 355 counties, however, are densely populated.

States considered nearly dry and ready for prohibition are: Texas, Utah, Wyoming, New Mexico, and Florida.

The wettest State of all is Nevada, with New Jersey, New York, Illinois, and California also strongly resisting prohibition.

The two Indian reservations in Nevada are the only portions of that State which are dry; they are dry by government regulation. The District of Columbia will be dry November 1st of this year.

New Way to Organize

By Xeno W. Putnam

GEOGRAPHIC distance is not by any means the only determining element worth considering when forming "neighborhoods" for any given purpose. Such has been the experience in my county.

When the federal farm-loan act was causing the farmers to form themselves into little neighborhood groups it occurred to us, here in Crawford County, Pennsylvania, that it was not always the nearest farms which most closely approached our own in some of the essentials to valuation. Ours lay adjacent to a first-class trolley line with exceptional markets open to it. So instead of

uniting strictly with our neighbors some of whose farms would have been back two or more miles from this line, we placed the following advertisement in two of the county papers:

FARM LOAN—Farmers wanting to borrow money under the federal farm-loan act and located near the — trolley line please address at once Federal Farm Loan.

This electric line ran through two counties for a distance of 40 miles. Of course, many of the owners were strangers to each other, but this fact could be easily overcome at our future meetings. The matter of location could not be changed so far as farms are concerned, and it is a well-known fact that in the past one of the great determining features of a farm's value has always been its location, its distance from market depending far less at times upon the number of geographic miles it is from town than upon the usual condition of the roads between.

The Trolley a Market Outlet

With this trolley line as our common market outlet, then, all of our membership could be made up of owners whose farm values were, in this one important particular, either of like value or with a difference easily reducible to dollars and cents by a mere comparison of trolley tolls.

The productive value of these farms could be measured, as in other cases, by

the crops raised per acre and with the cost for fertilizers considered. The value of the crops after they were raised were easily comparable in our case because we had a definite knowledge of what the marketing would cost us independent of the weather and the condition of the roads. We could therefore put the figures before the federal appraiser in a form that he could rely on and did not have to discount as a guess.

On the whole we have been finding our interests far more nearly identical, though some of us are miles apart, than would have been the case had we tried to organize, say, within township or other neighborhood lines. In fact, we find ourselves more convenient neighbors for purposes of holding meetings and all manner of quick communication than we would have found some of our much nearer neighbors in point of actual distance.

No matter what the day is like, the trolley will bring all of us to some central point in an hour or two much more easily than we could drive a shorter distance over bad roads through the same weather. Our meetings are better attended because of this, and it is easier for both our local and for the federal bank appraiser to get from farm to farm.

After all, the common-sense value of a farm is its desirability as a farm-produce factory site, and the market facilities of any kind of factory are of so much importance that few factory owners care to establish themselves far off from the transportation lines. Why then should not farmers, who are fortunate enough to be established along such a line, make the most of their favorable location in their demands for valuation, and why should not such a location be with farms a highly important determining element in the mind of any common-sense appraiser the same as it certainly would be in the valuation of any other kind of manufacturing properties?

\$1150 F. o. b. Racine
Mitchell Junior
a 40 h. p. Six
120-inch Wheelbase

\$1460 F. o. b. Racine
7-Passenger
48 Horsepower
127-inch Wheelbase

Mitchell
SIXES

Now an \$1150 Six Much Like the Larger Mitchell

John W. Bate believes that efficiency requires two sizes in Mitchells.

A seven-passenger car, to be roomy, must measure 127 inches from hub to hub. And 48 horsepower is the proper power.

But a 5-passenger car will be just as roomy with a 120-inch wheelbase. And a 40-horsepower motor gives it power enough.

So, to meet both conditions, we this year build a Mitchell and a Mitchell Junior. You don't need to pay for room or power not wanted.

Every Penny Counts

The Mitchell advantages lie in making every penny count. John W. Bate, the great efficiency expert, has spent years here to attain that.

He designed this whole 45-acre plant to build Mitchell cars economically. He equipped it with thousands of special machines. Every part is built here at the lowest factory cost. On this year's output his methods will save us at least \$4,000,000.

There is no other factory like this building high-grade cars.

Hundreds of Extras

You see the result in hundreds of extras—all paid for by factory savings.

There are 31 features—like a power tire pump—which are practically unique to the Mitchell.

We have doubled our margins of safety. This year every vital part has 100 per cent over-strength.

Over 440 parts are built of toughened steel. Many parts are oversize. Many are built of costly Chrome-Vanadium.

In luxury and beauty the Mitchell excels any other car in its class. The finish coats are fixed by heat, to give a deep, enduring lustre. A rare-grade leather is employed. This year we have added 24 per cent to the cost of these items alone.

See What Men Miss

See what men miss who buy cars without these extra features. See the 31 attractions, most of which are found in Mitchells only. See what luxurious bodies we can give you at these prices, because of our own body plant.

Then consider the value of this double-strength. It means a lifetime car.

See what it means in the Bate cantilever springs. In two years of use, on thousands of cars, not one of these springs has broken.

Those are the reasons why men are choosing Mitchells in such an ever-increasing way.

This year our output is increased 2½ times over. Mendon't want to miss these extras.

If you don't know the nearest Mitchell dealer, ask us for his name.

MITCHELL MOTORS COMPANY, Inc.
Racine, Wis., U. S. A.

TWO SIZES

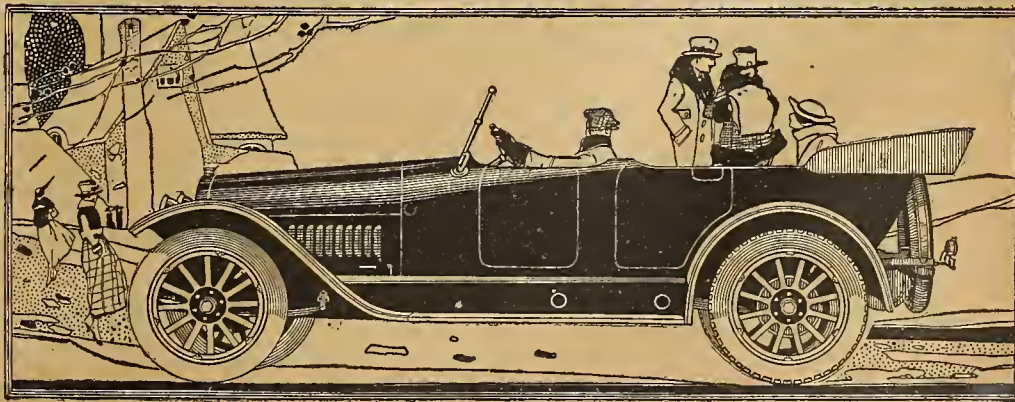
Mitchell—a roomy, 7-passenger Six, with 127-inch wheelbase. A high-speed, economical, 48-horsepower motor. Disappearing extra seats and 31 extra features included.

Price \$1460, f. o. b. Racine

Mitchell Junior—a 5-passenger Six on similar lines with 120-inch wheelbase. A 40-horsepower motor—¼-inch smaller bore than larger Mitchell.

Price \$1150, f. o. b. Racine

Also all styles of enclosed and convertible bodies. Also demountable tops.



FARM and FIRESIDE

THE NATIONAL FARM PAPER

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D. S. Burch B. F. W. Thorpe Ruth M. Boyle

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About Advertising

Farm and Fireside guarantees that its advertisers are responsible and honest people, and that its subscribers will receive fair and square treatment.
Advertising rates and regulations furnished upon request.

March 17, 1917

Rural Delivery

DO YOU know what R. D. means? Then write it R. D. No. 1, or whatever your number may be. Perhaps some will say the legal letters are R. F. D., but the F. is useless and a misnomer.

The city man's mail is delivered at his door—much mail, several times a day—and with no F. on it, although he belongs to one class that receives free delivery.

On the contrary, if there is one class of citizens whose property lies out of doors, fully spread out before the eyes of the assessor, it is the farmer; and, whether he pays directly in purchased or canceled stamps for the full cost of rural delivery, it is in no sense free, and should not be so designated.

R. R. means railroad, and R. means nothing; F. means free, and we love the word in the Land of the Free—in a free country, but not in so-called free delivery to the self-respecting, tax-paying rural citizen.

The word rural tells where to go; delivery, what to do; and that is sufficient, but not too much, direction. Write it R. D., and ask others to join in making it the standard form.

The Cotton Acreage

IS THE high cost of cotton going to stimulate unduly the planting to cotton this spring? Following the rather natural tendencies of farmers to plant heavily of a crop following a season of good prices, the casual observer doubtless would predict a heavy seeding.

Many views to the contrary, however, the farmer usually considers the problem of what crops he will plant as a personal problem, and rightly so. If any of us could tell just a few minutes ahead what future market prices would be, our pecuniary troubles would be passed. But demand and supply still continue to reign supreme as major factors in establishing prices.

Eighteen or twenty cent cotton surely is an incentive to plant cotton this spring. The slump in cotton prices following the outbreak of the European war, when the largest cotton crop on record had been made at great expense, is still fresh in the minds of many. For several months after the slump, cotton moved marketward very slowly, and prices dropped to below the cost of production.

The problem to be solved by cotton farmers this year, as in the past, is not so much how to reduce cotton acreage as it is how to increase other crops and grow enough food for themselves and their live stock. Statistics show that the acreage in cotton increased somewhat in 1916. There was also a larger area devoted to other crops which sold at high prices; in addition, a marked impetus was given to the live-stock in-

dustry. During the last five years in the eleven States in the cotton belt the acreage in cotton increased 15.7 per cent, corn 22.2 per cent, wheat 152.4 per cent, oats 84 per cent, and hay 39.5 per cent.

If this same ratio of increase in crops continues, the one-crop bugbear will soon become a thing of the past.

A Dairy Reaction

IF THERE is such a thing as farmers making too much money for their own future good, Wisconsin dairy farmers seem to be in that position at the present time, according to reports sifting in from the butter markets. A few years ago, when the price paid for milk was \$1 a hundred pounds, a better grade of milk was received at the creameries and cheese factories than now, when prices are ranging from \$2 to \$2.50.

The natural consequence has been a deterioration in the quality of butter manufactured. Though it now sells at high prices and everyone seems to be satisfied, there is danger ahead. At the close of the European war, New Zealand, Australia, Argentina, and Denmark will all seek our markets. These countries have a reputation for a high quality of dairy products, and if importations are heavy the prosperous American public will very likely prefer the imported goods to American butter.

The impending danger of being out-sold in our own country by foreign competition is a matter worthy of most serious attention.

Better Weather Service

THE U. S. Weather Bureau has lately improved its system of gathering and announcing the weather news. Special attention is to be given to three- and four-day forecasts during the seasons for cutting grain, hay, and other perishable crops, also at sheep-shearing time, as fine weather following shearing is most important to Western sheepmen.

In 1916 the Bureau furnished a special weather service to Louisiana cotton and rice growers, and this year that class of work will be extended. Another development is a temperature forecast for the principal fruit, grape, and cranberry districts of the country. Additional weather stations have been established, in charge of trained men who understand agricultural problems as well as the weather. Reports are sent out directly from these local stations, and in cases of extreme danger the weather observers notify all persons on their list by telephone.

Weather forecasting, while still far from an exact science, has improved wonderfully as the result of studies of the upper air currents and the greater experience of the men in the service. The United States now has more than 4,700 weather stations, or an average of about 100 for each State. The Bureau is slowly unraveling the tangled mysteries of the weather; aeronautics has helped greatly; and the special agricultural service now in force should be the means of reducing haying and harvest losses.

Although the weather is not getting any better, the forecasting service has never been as good as it is to-day. This may be an important help which some of us perhaps are overlooking.

Butting Into Dixie

A SHEEP authority of nation-wide reputation says: "Were the rough idle lands in only three Southern States stocked with goats, that territory would furnish sufficient leather to supply the demand of the United States."

Add to this the meat and mohair which would be produced as combination products, for all of which the world markets are eagerly clamoring, then it would seem to be the best of economic prudence to allow his goatship to butt into Dixie.

A Nation on Wheels

THE present amazing growth of the automobile industry has more than justified the wildest hopes of its pioneers. In 1916 more than a billion dollars' worth of motor vehicles passed from manufacturers to users. About nine tenths of these were pleasure cars, the remainder being trucks and delivery cars. Perhaps if you see the figures in cold type you can get a better idea of the strides of the business for 1916 over 1915. These figures have been gathered from manufacturers by the National Automobile Chamber of Commerce:

Passenger cars sold in 1915..	842,249
Passenger cars sold in 1916..	1,525,578
Retail value of motor vehicles sold in 1915.....	\$691,778,950
Retail value of motor vehicles sold in 1916.....	\$1,088,028,273

Sales of motor trucks during 1916 were nearly double those of the previous year, and the export trade also shows a healthy increase, shipping risks notwithstanding. Altogether the motor vehicles now in service in the United States number about 3,500,000. With an estimated average capacity of five persons to a car, these motor vehicles could at any given time carry one-seventh of our total population or, to put it differently, would be able to give every person in the United States a full day's joy ride once a week and repeat it every week thereafter, the gasoline supply permitting. The nation's production of motor cars—call it the birth rate if you like—now considerably exceeds 5,000 daily, and yet all this has happened within the lifetime of the average horse. And, in the face of it all, prospects point to a still greater record for 1917 to meet the unsatisfied public demand. What a tale for historians to tell!

Our Letter Box

The West Still Calls

DEAR EDITOR: When I was ten years old my father moved into the timbered district of northern Wisconsin, and with my brothers I helped to hew out and work into shape the little farm that for several years was our home.

We had to cut and burn the timber which had little or no value at that time, gather the brush and debris, then dig and blast and pull with our oxen the stumps that were left, finally working among the remaining roots with a plow (I cannot call it plowing) until the soil was ready for the seed.

Upon reaching my majority I asked the question, "How shall I acquire a farm home for myself?" I had grown utterly discouraged with the immense amount of heart-breaking toil necessary to bring the land into subjection.

After carefully considering what the prospects were in that immediate locality and from what I could learn from other localities, I took the advice to go West and grow up with the country. I went West and stayed several years, going over the Dakotas, Washington, and Oregon. I found land selling at prices ranging from \$5 to \$1,000 an acre in the fruit sections of Oregon and Washington, but no place where I could start with meager capital.

Now, if the young man, full of energy and anxious to show his ability, rents land on even the most favorable terms, he must make money for the landlord first, and try afterwards to save something for himself, but the experience of many young men shows this to be a slow process. There are some advantages, however, in renting. One usually lives in better quarters, has more machinery to work with, and is in more congenial surroundings. He has the advantages of schools, churches, clubs, and the society of neighbors. Many a young man hesitates to leave the congenial surroundings of his boyhood to go into a new country to carve his fortune. Yet, in some there is the spirit of the pioneer, the desire to show their mettle.

The great West is calling the young man with a few hundred dollars, with nerve enough to brave the hardships of a new country, and brain and muscle to convert raw land at \$10 to \$20 an acre into \$40 and \$50 an acre farms.

The land is not all level, neither is the weather all sunshine, but the people who live here make money and enjoy it.

I find no trouble in producing good crops, 25 bushels of wheat, 40 bushels of corn, and other crops in proportion, and this on land worth from \$10 to \$20 an acre. One can also get a few desirable homesteads. There are many new things to learn, but crops are produced much the same here as they are in any other State. F. C. BOYCE, Montana.

A City Woman's Way

DEAR EDITOR: I was certainly amused at a letter printed in FARM AND FIRESIDE on the "Art of Dishwashing by Country Women." Could the woman referred to, with two years' experience in country life, milk a cow? Could she care for a flock of chickens without losing three fourths of them? Did she know how to break up a broody hen, or what to do when the cream wouldn't churn?

It's true we have some women on the farm that don't know how to wash dishes properly, but I know one city woman who, although she knew how to wash them, would stack them unwashed in a dish pan and hide them in the flour barrel or oven in order to make her kitchen look tidy. One day she hid a high-priced set of dishes in the oven, forgot them, and built a hot fire to do her ironing. The glaze on the dishes was damaged.

MRS. I. J. MARZ, Missouri.

He Did a Real Day's Work

DEAR EDITOR: I have been reading an issue of FARM AND FIRESIDE in which there is an article entitled "More About the Hired Man." The article was a source of amusement and interest to me, so I will write some of my experience in the same field.

On May 1, 1915, my wife, boy, and I moved on to a ranch. I was told that my work would consist in taking care of six head of mules, one buggy horse, milk the cow, get in some wood at the owner's house, and put in nine hours in the field at work.

Well, I found that I was expected to be in the field and start the team promptly at seven o'clock (one field was one and a half miles from the barn), stop the team at twelve, take them to water, half a mile from the wagon, feed them, eat a cold dinner winter or summer, and be hitched up ready to move at one o'clock, work until five, drive to the house, put the mules away, split wood for the range in the kitchen, carry enough large chunks of oak wood for three heating stoves, split enough fine kindling for all the stoves, milk the cow and a young heifer, feed six head of mules, the horse, carry water about 75 yards to three head of calves, pump water by hand for all the stock, eat my supper, and if there was any time left to get any sleep, well and good.

I was told by the foreman that I could have the team to go to town and do our trading. I only got to take my wife to town twice from May 1, 1915, until June 19, 1916, to do any trading, and that was after night when my day's work was done. On Sunday I had to do the chores, go to town for gasoline or anything else that was to be brought out, and if I went off the place after that they were mad about it for days afterwards.

Some landlords will say they cannot get the right kind of help any more. Is it to be wondered at?

A. REED, Oregon.

His Wife is the Banker

DEAR EDITOR: After reading your Editor's Letter on the financial arrangements of husband and wife, I would like to tell you how we do it.

We have no money to put in the bank since we use all our money in our business, which is ranching on a small scale. My wife is the banker when we have any money. I believe a wife should have the same privilege as the husband, and should order all provisions and her own and the children's clothing.

We have no children. I buy or pick out no clothing for my wife, as I can't please her in taste. Over twenty years ago I bought her a five-dollar hat and some dresses. They didn't suit and she never wore them. I wasn't angry about it, for I realized that her taste and mine differed. Since then she has chosen her own clothes.

My wife chooses most of my work clothes and most of the provisions. She knows what she wants to cook, and I don't. We are not rich people as worldly goods go, but it isn't her fault, as she is more saving than I am, and her judgment is as good or better than mine. We all know there are extravagant women. We also know that there are men who are more so, so at best it's an even break on that score. Why not be real partners with your wife? If she can't give you a lesson in economy, I miss my guess. Don't be a tightwad with your wife and children.

H. E. ORDWAY, Nevada.

EW



Consider This Certain and Positive Proof of Saxon "Six" Supremacy

Let us dispense with fine phrases and seek facts.

For facts alone form a stable basis upon which to adjudge motor car values.

And further, we believe you are more interested in actions than in adjectives.

First of all turn your attention to the Saxon "Six" motor.

Compare it with the car of less than six cylinders that stands highest in your estimation.

Though that "less-than-six" may be developed to the full limit of its possibilities you still will find lapses between its power impulses.

These lapses you know produce the vibration and friction that are the bane of motor life. And they exert considerable injurious effect upon the parts, too.

Gear-shifting becomes more and more frequently a necessity. Acceleration slows up and pulling power lessens.

Finally we see them revealed in growing repair and replacement bills. And shortly the car has reached the end of its usefulness long before it should.

E.W.

On the other hand, the Saxon motor, with its six cylinders, develops a continuous flow of power. Vibration has been reduced to a minimum. Uniform torque, the ambition of all motor designers, is attained.

Briefly explained, in the "less-than-six" you find a **less number** of explosions at any given speed, and each explosion **more severe**.

In the "Six" you get far **more** explosions and each **less severe** in its application to the bearings.

Take for example a certain well-known car of less than six cylinders, tested under the same prevailing conditions as Saxon "Six."

At a speed of 20 miles per hour, the Saxon "Six" motor developed 98% more impulses per minute than did the "less-than-six."

This 98% greater percentage of impulses is vitally significant.

And its significance is concretely expressed in the fact that when this "less-than-six" and Saxon "Six" were tested for acceleration, Saxon "Six" revealed 22% faster pick-up.

Nor is it in acceleration alone that this smoother power-flow gives the advantage to Saxon "Six."

Its value is revealed similarly in far greater pulling power and flexibility.

In every phase of performance Saxon "Six" must be considered supreme among cars costing less than \$1200.

Under the most drastic and grueling conditions of public and private tests it has earned top place.

Probably you may never feel the inclination or necessity to call upon Saxon "Six" to the full limit of its speed and power.

Nevertheless it is re-assuring to know that should the time come you have the extra speed and power at your command.

On the other hand, you will probably delight many times a day in the pick-up of Saxon "Six" and in its greater flexibility, which relieves you of gear-shifting to an amazing extent.

And further satisfaction accrues to you from the knowledge that Saxon "Six" wastes not a particle of gasoline.

Its average established by 206 stock model Saxon "Sixes" in a 300 mile non-stop run is 23.5 miles per gallon.

Over 2000 dealers have this car on their show room floors. We urge your early inspection, for first come will be first served, and it evidently will not be easy to get Saxon "Sixes" quickly a little later in the season.

Saxon "Six" is \$865; "Six" Sedan, \$1250; "Four" Roadster, \$495; f. o. b. Detroit. Canadian prices: "Six" Touring Car, \$1175; "Six" Sedan, \$1675; "Four" Roadster, \$665. Price of special export models: "Six," \$915; "Four," \$495; f. o. b. Detroit.

(923)

SAXON "SIX"

A BIG TOURING CAR FOR FIVE PEOPLE

SAXON MOTOR CAR CORPORATION, DETROIT

The New Hupmobile

The Year-Ahead Beauty-Car

Bright finish, long grain, French seam upholstery

Improved cushions and lace type back springs in seats

Leather-covered molding finish along edge of upholstery

Neverleek top, black outside, tan inside—waterproof

Tonneau gipsy quarter curtains, integral with top

Hupmobile-Bishop door-curtain carriers, folding with curtains—exclusive feature

Large door pockets, weighted flaps

New body color—Hupmobile blue

New variable dimming device graduates brilliance of head lights

Tail lamp independent of other lamps

New soft operating clutch

Look for no car equaling this new Hupmobile, even in externals, for twelve months to come. It was the world's finest Four before. Now it is the year-ahead beauty-car as well.

More than \$750,000 spent for factory improvements in 1916 paved the way.

We needed larger production to spread the cost of excess goodness. And new factories to get the production. Now we have them both. And you get the beauty-car a year ahead.

Engine Fit For a \$3,000 Car

We have held fast to Hupmobile standards and pulled down the over-head. Critics (among them a leading car builder) called the Hupmobile motor "a power plant fit for a \$3,000 car." And so it is.

They said we could cheapen the rear axle, use a clutch less costly, and so on.

But we refused to take the obvious course. Nearly a million dollars spent in factory-saving and efficiency looked better to us than lowering Hupmobile ideals.

A Wonder-Car In Performance

The Hupmobile has always been a wonder-car in performance. Its supremacy has not stopped short with supremacy over all other Fours.

It wins every day against Sixes, Eights and Twelves—as any Hupmobile dealer will gladly show you.

Now it wears a sheath worthy of its steel. The high-duty-car has also become the rare-beauty-car.

The Glory of Good Looks

The Hupmobile will always be sold on performance. Dealers will continue to court competitive tests. Owners will continue to boast of the superiority of "their" car. But a new glory is added—the glory of extraordinary good looks and social distinction.

The Show will not disclose an equal value. Looking a year ahead, nothing equal is in sight. You cannot buy wisely unless you see The New Hupmobile.

Five Pass. Touring Car, \$1185 Roadster, - - \$1185
Year 'Round Touring Car, \$1385 Year 'Round Coupe, \$1370
Seven-Pass. Touring Car, \$1340 Sedan, - - \$1735
f. o. b. Detroit

Hupp Motor Car Corporation
1334 Milwaukee Avenue
Detroit, Mich.



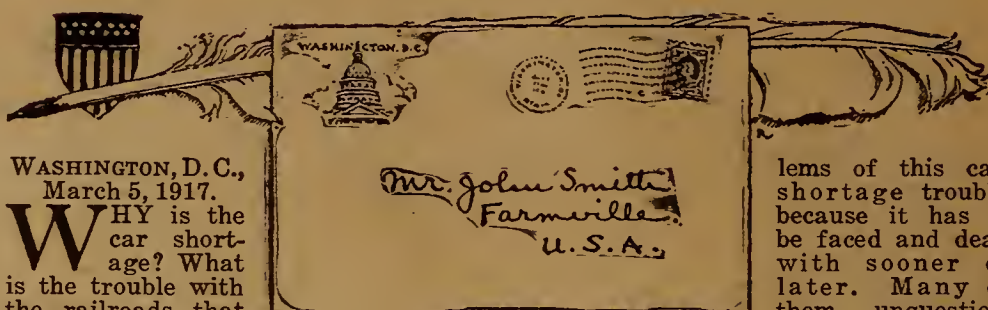
The Mark of Superior

Motor Car Service

The Car Shortage

Nation-Wide Complaint of Freight Service

By JOHN SNURE



WASHINGTON, D. C.,
March 5, 1917.

WHY is the car shortage? What

is the trouble with the railroads that the air is filled, and has been filled for months, with complaints of delayed, uncertain, and inadequate freight service?

The car-shortage problem has come close home to every community. All through the recent session of Congress, members of Senate and House were flooded with complaints from every section and every State. Farmers, livestock men, manufacturers, business houses of all sorts, by wire and letter, "kicked" because they were losing money through slowness of freight service or actual impossibility of getting any freight service. The Interstate Commerce Commission was bombarded, and the White House itself got many letters telling of the lack of cars and the loss and suffering caused thereby.

Complaint has by no means ceased, and there is no prospect that it will for a long time to come. The food riots in New York, Philadelphia, and other cities gave a painful point to the facts.

Of course, no one with good judgment will blame the foodstuffs shortage in the cities and unreasonable retail prices entirely on car shortage and on the railroads. But the car shortage is a factor, and an important one. And the car shortage has hit the industries of the country hard, and made a lot of trouble in other ways than in regard to foodstuffs, though not, perhaps, so spectacular.

When the cry went up that poor families in New York and other cities lacked food, the Interstate Commerce Commission and other government agencies hurried to rush idle cars into action and speed food supplies to points where they were needed. This helped some. But rushing a few thousand freight cars of food supplies into the centers of population in an emergency isn't solving the car shortage.

Anyone who studies the car-shortage problem impartially cannot fail to come to the conclusion that the Government must take hold of it and deal with it firmly, with the public welfare in mind.

The railroad freight service has failed to meet requirements, and is still falling short of meeting demands. What, for instance, does it mean when the head of a big concern in Iowa, handling clover seed and grass seeds, writes to Washington saying his whole spring business was endangered because of inability to get cars until he went to Chicago and made a personal appeal to railroad presidents and then got only partial relief?

NOT only has industry been seriously affected, but an immense amount of discomfort and suffering has been caused. All through the past winter, families and communities have had difficulty in obtaining coal.

Here, for instance, is what Representative Cullop of Indiana said about it in the House just before the adjournment of the short session:

"Schools have had to close in my State for the want of fuel, within 200 miles of great coal mines—coal mines which are capable of abundantly supplying the markets. But they could not get the cars to haul the coal to the market, and yet the cars were in the country and within 250 miles of the mines that wanted them to haul their product to market.

"It is time to consider what steps should be taken to remedy this evil which exists in this country to-day. It is an evil, and it is a serious evil. The food products are in the West. There is enough wheat in the Chicago elevators to supply New York City, the entire population, for three years, and yet they cannot get transportation facilities to haul it to the people who want to purchase it at good prices."

Mr. Cullop, a member of the Interstate Commerce Committee of the House, declared the railroads were either creating this condition intentionally from an ulterior motive or were utterly incapable of managing their business.

Readers of FARM AND FIRESIDE will do well to consider some of the chief prob-

lems of this car-shortage trouble, because it has to be faced and dealt with sooner or later. Many of them, unquestionably, have had personal experience with it.

To begin with, it isn't a new complaint. The country has suffered from it in one way and another for many years. No adequate remedy having been found, it has been growing worse. Back in 1906 there was an acute congestion and car shortage. It affected principally the Dakotas and other parts of the Northwest, but finally became almost nation-wide. The Interstate Commerce Commission investigated. Presidents of the railroads admitted they had more business than they could handle. One said the railroads "have not kept in sight of the country's growth," and that his road and many others were "endeavoring to bore a one-inch hole with a half-inch auger."

SINCE then, not a year has passed without more or less trouble over car shortage.

In the summer of 1914 came the war in Europe. Before many months heavy exportations of munitions, foodstuffs, and material of all sorts moved to Europe from this country. Business expanded and the railroads, although now receiving the greatest earnings in their history, have not met the demands.

With the cities clamoring for food and shippers all over the country clamoring for cars, official figures showed not long since as high as 165,000 idle cars.

It is a fact beyond dispute that the railroads are not putting all their equipment to good use. Much of it is not kept moving as it should be. In many cases cars are not filled to their capacity. At many terminals the roads lack elevators and other storage facilities, and the result is "storage on wheels." In other words, loaded cars are allowed to stand on the tracks.

Freight yards in many cases are not big enough, or are not well designed. Some freight yards, as Interstate Commerce Commissioner Hall recently told the House Interstate Commerce Committee, are "like bottles" and freight trains have to go in and out of the "neck."

It isn't much wonder the country is complaining of car shortage and like difficulties because it can't get its products hauled on time or can't get them hauled at all. The truth is, the Government, including the Interstate Commerce Commission, Congress, and officials generally, has been too lenient. It has for years accepted—and still accepts, though showing signs of getting over it—the railroad view that the roads ought not to be required to have enough cars and facilities to handle business when it is "at the peak." This is another way of saying the roads ought not to be required to have enough facilities to handle business when it becomes unusually heavy.

"It's not economic," say the railroad managers.

To which the public is to-day fully able to reply, from sad experience, that "it's not economic" to have its shipments of wheat, coal, live stock, manufactured goods, and so on delayed, embarrassed, and prevented.

It comes down to whether we're going to consider the question in the light of railroad profits or in the light of the transportation and freight needs of the people.

Congress and the Interstate Commerce Commission are at last showing a growing disposition to consider it in the light of the needs of the public. But in the light of experience one may well doubt whether the public is to be insured an adequate freight service from year to year until the day comes when there is much more drastic regulation than now, or until the Government takes over the roads and runs them with an eye to the public weal. Incidentally, some of the ablest and keenest students of the railroad situation in Congress and official life give warning that the railroad managers may be expected to employ the car shortage as an argument why they should be granted still higher freight rates, and it will be well to be on guard against such arguments.

E-W

Smith Form-a-Truck

\$350

F.O.B. CHICAGO

Rack Body for Hay, Straw, Loose Grain



Get Four Times the Work At the Same Cost

IN all heavy farm hauling this is what users of Smith Form-a-Truck are doing. Hauling twice the load three times as far—saving feed charges, veterinary bills and farm labor—and doing its work in all kinds of weather at the lowest cost for hauling that has ever been reached.

Keep Horses For Farm Only

Use your horses for plowing, seeding and harvesting. But not for hauling. You delay farm work—lose time and money.

Let Smith Form-a-Truck carry your manure—hay—fertilizer—and do all other farm hauling on the farm. It will do the work of four teams. *And at half the cost!*

Use the Smith Form-a-Truck for hauling milk, grain and other farm products to town. It will haul as much as two teams. *And in half the time!* That alone will save two to three hours' time for two

drivers. In a year it amounts to 1200 hours—120 days—\$240 pay. And it gives you the use of those four horses for farm work.

20 More Acres

Your Smith Form-a-Truck is as good as 20 acres of land to you. Government figures show that in a single year four horses eat all the feed that can be grown on 20 acres of land. Smith Form-a-Truck will save that. 20 acres of land for \$350! Think of it!

Unbeatable for Dairy Farms

All over the country dairy farm-

ers are replacing expensive horses with economical Smith Form-a-Trucks. It will haul 2000 pounds of milk ten miles and return with the empty cans in less than two hours. And the total cost for the round trip is but \$1.50—gasoline, oil, tires and everything. Think of it!

Two teams and two drivers would require half a day for this work.

Travels Anywhere

Smith Form-a-Truck will travel anywhere horses will go—through mud, sand, snow. No hill is too steep.

Famous 8-in-1 Convertible Farm Body

Change to any one of eight types of bodies is made instantly with the famous 8-in-1 farm body. No tools required. Merely pull the lever. This is an exclusive Smith Form-a-Truck feature.

Amazing Strength Smith Form-a-Truck combines with any Ford, Maxwell, Overland, Dodge Brothers, Buick or Chevrolet to make a fully guaranteed one-ton truck. When the chassis of these cars is telescoped on the Smith Form-a-Truck frame, the wonderful strength of these cars is reinforced. A double construction feature is provided—the strongest construction known to engineering.

And the rear axles of these cars merely become jackshafts for the chain drive. The strong, sturdy Smith Form-a-Truck

axle carries 90% of the load. The first Smith Form-a-Truck ever built is still in daily service. It has traveled over 20,000 miles. And total repair cost has been less than \$8.00.

Unequalled Economy Note these wonderful records of Smith Form-a-Trucks in daily use on hundreds and hundreds of farms. 12 to 15 miles on a gallon of gasoline—6,000 to 8,000 miles on a set of tires—12 to 18 miles per hour.

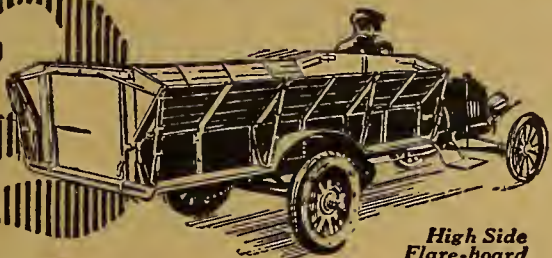
Send Coupon Now Every day's delay in putting the Smith Form-a-Truck on your farm costs you hard earned money. Send for the big FREE Book today.

Write your name on the coupon *Now*. Never mind pen and ink. A pencil will do. But mail it at once.

Smith Motor Truck Corporation

Manufacturers of Smith Form-a-Trucks

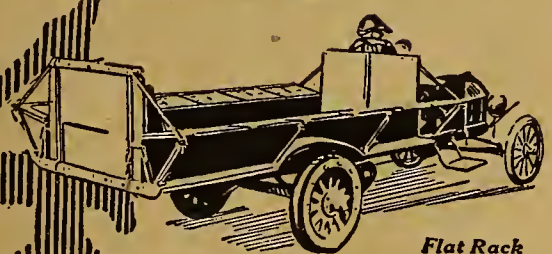
Executive Offices and Salesroom—Suite 943—Smith Form-a-Truck Building
1740 Michigan Avenue, Chicago



High Side Flare-board Body



Hog Rack Body



Flat Rack Body



Stock Rack Body



Basket Rack Body



Flat Rack Body, scoop board down



Grain Body



The shaded portion of the chassis illustration shows the Smith Form-a-Truck Attachment, which carries 90% of the load, bolted to the car power plant, with a vise-like grip.

CUT THIS OUT! MAIL IT TODAY!

Smith Motor Truck Corporation
Suite 943, 1470 Michigan Avenue, Chicago, Ill.

Gentlemen:—Without obligation on my part please send me full details of your farm attachment and the new convertible body for farm use. I am interested in how the Smith Form-a-Truck can save me money and give me better service than I am getting with horses.

Name.....

Town.....County.....

State.....Number acres owned.....

Letters from a June Bride

Betty Returns from a Vacation



DEAREST SISTER:

I really think Billy was a little afraid I'd get so used to all the city conveniences while I was a way that I wouldn't be content to come back to such things as washing in a china bowl, reading by a kerosene lamp, and cooking with a wood fire. But much as I have enjoyed all the city luxuries, it is good to get back again to the peace and freedom of the country.

I arrived home safely at two o'clock, being held up for an hour at a small town until some freight cars could be moved off the track. So you see I should have felt pretty weak after the long stuffy ride if it hadn't been for all the lovely sandwiches which you made for me.

Billy was waiting for me at the station, and from the enthusiasm of our greeting you might have supposed I had been gone a whole year instead of four short weeks. I was delighted to see him looking so well. I'm sure he's been really getting fat on Aunt Alice's cooking. He was equally impressed with my improvement, and declares I too look fat, which is perhaps a little too strong a statement, but according to old Mr. Gowdy's scales—where we stopped to assure ourselves—I was surprised to find that I had gained six pounds.

Old Valley, hitched to a tree on a side street, looked just as lumbering and awkward as ever, and has the same habit of whinnying at every horse she meets. The buggy hadn't had those coats of black paint which it so badly needed, but poor Billy has had so much on his hands lately that it is no wonder he hasn't had a chance to paint the buggy. For once the seven-mile drive home didn't seem long, and I quite forgot to give Valley any of my usual reminders to "please get a move on." The country looked lovely and the air seemed so soft and fragrant with the breath of early spring. It seemed so very peaceful after the rustle and bustle of the city.

I was glad, after all, that I hadn't put my fur coat in the trunk, because, though it was a kind of white elephant on the train—except at night when I used it as an extra covering—it was none too warm while driving. I am every day more thankful that I have it, and am sure it is the loveliest present Father could have given me. I only wish more of my friends around here had them. Didn't you tell me about getting fur coats for less than half price in the cities when the season is over? I want to tell Mrs. Green about it, for she told me she was thinking about getting one if they weren't too expensive.

I WAS surprised at the wonderful progress that had been made with the new macadam road which I told you is being built right past our farm. In order to avoid a difficult curve in the road they have had to cut a big slice off our front field, and several magnificent old trees will have to be sacrificed, which would seem ruthless if we didn't realize how much the road is going to mean to everyone in this country.

One of our neighbors got so worked up about it that he came over to see Billy and told him that he was nothing short of crazy not to "raise a fuss about it."

"I'll be durned if they cut off any of my land," he said. "What's the use of these here macadam roads anyway? I kin haul just as much on a dirt road as I kin on them other kind, and I don't intend to give nothin' for no sich thing."

But fortunately such views are very exceptional. For the most part the farmers along the road have been wonderfully liberal, giving in many cases out of all proportion to their means.

Though we were in no position to give much money ourselves, when we sat down and figured it out seriously we couldn't for the life of us see how we could afford not to make a supreme effort in the good cause. For the expenditure of several hundred dollars, now, just think what we may expect in the future.

An increase of \$10 an acre to the value of the farm is a conservative estimate, and should we ever try to sell

off the young peach orchard, as we hope to do some day, just think what a talking point it would be to be able to say "seven miles from C—on a new macadam road." And these are quite aside from the more obvious advantages—shortening the distance to town, increasing the hauling capacity in good weather, and making it possible to haul at a time of year when otherwise the roads would be almost impassable. No grade will be over five degrees.

In some States, I believe, the State bears all the expense of road-building, which is estimated at about \$1,000 a mile, but here it is managed a little differently. The State pays half the expense and the farmers along the road bear the other cost, while the upkeep is maintained by a system of toll gates, instead of taxing all the people, as is done sometimes.

AUNT ALICE was waiting for us at the side gate, as bright and sunny as ever, and poor Tippy nearly wagged his little black tail off, for fear he wouldn't be noticed in the general confusion. Everything about the yard and house looked spotless, and I'm sure they must have been working for days, though they both declare solemnly that they didn't make any special preparations for my home-coming. At any rate, I never remember things having had quite such a polished look under my régime. There was a roaring fire in the sitting-room grate, which added cheer, though it wasn't really needed. We all sat around it and talked—though I'm afraid I did most of it—until time for Billy to do the chores.

Fortunately my trunk came through in good time, so that it could be brought out the day before I arrived, while Emmett was hauling cordwood to town, and thus saved an extra trip, which would have been a definite loss, now that the weather is favorable for plowing.

Aunt Alice was delighted with the Indian basket and could scarcely believe that it could have been made by a woman over eighty years of age. She thinks it would make nice work for her, now that her eyes are too poor for much sewing, and she does get so tired of the eternal knitting. I don't see why people don't do such things instead of crazy quilts, etc. I'm sure they are much more artistic and are always wonderfully useful.

I've snatched time for this letter right out of the very busiest time of the day. Next time I'll tell you everything I've been doing, trying to get caught up in my work. I am starting my incubator in a few days with 200 eggs, and am now testing the temperature, which takes about two or three days.

How can I thank you all for the beautiful vacation, which I am sure has done me worlds of good. I feel so strong and eager to begin the spring work, and before I went away I was beginning to feel very languid and tired out. I'm more than ever convinced that every farm woman ought to get away once a year, even if for only a few days. When I compare the expense of my trip with the probable doctor bill that we should have had if I had not gotten a change when I did, I realize that I have actually been saving money.

Betty

To Prevent Gasoline Rings

THERE is nothing more discouraging to one than after removing spots from a garment with gasoline to find a number of dark rings on the material in the place of the spots. I find a satisfactory way to avoid this difficulty is to make a solution of one cupful of gasoline and one-fourth teaspoonful of salt. I place several layers of some absorbent material as cotton or linen under the spot to be removed. Then I apply the solution with a soft cloth, beginning at the outer edge of the spot and working to the center. If this procedure is followed it will give satisfactory results. Gasoline is also excellent for removing grease spots from wall paper. I apply the gasoline with a soft cloth to the wall paper two or three times, and the grease spots will disappear.



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as Rhadames
in Aida

Masterpieces of opera by the world's greatest artists

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Built for farmers who want an 4 H. P. Only 190 lbs. Cushman Engines are built to engine to do many jobs in many 8 H. P. Only 320 lbs. run with least trouble and to do places instead of one job in one place. Weigh only about one-fifth as much as ordinary farm engines, but run even more steadily and quietly. No loud explosions—no jerky fast-and-slow speeds. Water circulating pump, driven by engine prevents overheating on all-day run. Don't buy any engine until you ask how much it weighs, whether it is throttle governed and has a good carburetor.

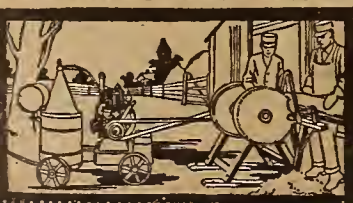
More efficient and longer lived because of lighter weight, higher speed, less friction and lower operating cost. With a 4 H. P. on your binder you can cut 8 to 10 acres more a day with less horses. In wet seasons it saves the crop, assiduously keeps running when bull wheel slips. After harvest same engine used for all other farm and household jobs. Our free Engine Book tells about it.

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4 H. P. on Binder—Fits any Binder.

Throttle Governor gives plenty of steady power.

The All-Purpose Farm Engine.



Good-Health Talks

Suggested by Questions from Our Readers

By DAVID E. SPAHR, M. D.

THERE is a form of acute goiter when within the course of a few days, or possibly within a few hours, the thyroid gland may so swell as to produce severe symptoms, more especially of impeded respiration, prolonged inspiration, and paroxysmal dyspnea, or difficult breathing, and may be followed by evidences of bronchial catarrh. Should this occur with women during the menstrual period, it is not uncommon for it to be accompanied by a peculiarly raw cough and distinct modification of the voice. In the more severe cases this respiratory disturbance may lead to death by asphyxia. This, however, rarely occurs, and the gland may gradually lessen in size and the goiter and the distressing symptoms gradually disappear.



years old, and had three or four fits of hysterics when I was small."

When disorders of speech have their origin in the nerve centers, treatment or training will avail but little. Where caused by adenoids, tongue-tie, or irregular teeth, they are easily remedied. Systematic teaching and training may overcome speech defects when they are due to a failure on the part of the vocal organs to co-operate with those of articulation. Learn to speak very slowly and deliberately, and do not allow yourself to become excited.

Affection of Skin

I have been troubled with psoriasis for six years. The most of the spots are on the outside of the arms, from the elbow down. I have always had good health. Mrs. C. I. K., Oregon.

YOUR case of psoriasis, or scaly tetter, is a chronic one, and you will be slow in getting well.

You should take seven drops of Fowler's solution of arsenic after meals, for six days each week, omitting Sundays, for some months. Then you should apply an ointment of chrysarobin, twenty grains to one ounce of pure vaseline. This should be rubbed into the patches two or three times daily. The surplus ointment may be rubbed off and a dusting powder applied. Keep this up faithfully for some time, and I hope to hear that you have been relieved.

Sulphur

What amount of sulphur was there in the old prescription of cream of tartar, sulphur, and molasses? Myself and children have been breaking out with boils. Mrs. J. W. S., Pennsylvania.

ITHINK it was equal parts of each, and the dose a teaspoonful. We use now calcium sulphide, one-grain tablet three times daily until the breath is saturated with it.

Diabetes

My wife has had diabetes for two years, constipation, and a severe headache. The diet outlined by her doctor is being followed strictly. She eats nothing containing starch or sugar. She is rapidly losing flesh. G. M. H., North Carolina.

FOR constipation have her take two lapactic pills or a tablespoonful of Russian oil at night. Perhaps a tablespoonful of Brewer's yeast would be beneficial. Light work and exercise will be good for her.

Dizziness

I have trouble with my stomach and bowels, bad taste in my mouth, and in the morning a headache, and am often-times dizzy. Mrs. H. F. C., Massachusetts.

YOUR liver is inactive. Take a teaspoonful of phosphate of soda in a glass of hot water before meals.

Bloating After Meals

What can be done for bloating or swelling after meals? It makes me short of breath and very miserable. My heart beats too rapidly, pounding away very hard, whether I exercise or not. Mrs. J. A. Y., Ohio.

THERE is some obstruction to the circulation either through the liver (portal circulation) or somewhere. Take a teaspoonful of compound jalap powder in a glass of water twice daily and relieve the obstruction, and clean out the system.

Foul Breath

What causes foul breath, and what can I do to remedy it? H. S., New York.

FOUL breath might come from several causes: Bad teeth, chronic catarrh, tuberculosis, laryngitis, or diseased lungs. Use a spray of listerine, one ounce to three ounces of water. Or the following is also good: Carbolic acid, ten drops; glycerin, one-half ounce; water, three ounces. Mix and use in an atomizer three times daily. Also have you teeth examined.

For Sour Stomach

I am bothered a great deal with sour stomach. What can I do for it? I. F. L., Nebraska.

TAKE the juice of one lemon and put it in a glass with one-fourth teaspoonful of soda, fill the glass with water, and drink while foaming.

Ophthalmia

One eye of our one-month-old baby girl runs all the time, and much pus comes from it. This condition has existed since she was born. What can be done for it? J. J., Montana.

REPORT it to the State Board of Health, or have your doctor take care of it at once, or the child will lose its sight. It may also infect the other eye, and one of you may become infected. It requires close attention and treatment at once.

Catarrh

I have suffered with chronic catarrh of the head for about twelve years, and have tried almost everything. As I am working in the logging industry I cannot take or use handily any medicines to inject into the nose. I should therefore like you to prescribe something I can take in tablet form. C. C., Washington.

GET one hundred rhinitis tablets and take one every two hours.

Worms

Is it very likely that an adult be troubled with long white stomach worms? If so, what is the remedy? Mrs. J. M. B., California.

ADULTS with a weak digestion are subject to worms. To get free of them, take one tablet at eight o'clock and another at nine o'clock at night—or an hour apart—of calomel one-half grain, santonin one-half grain, followed by a dose of castor oil in the morning. Repeat the next night if necessary.

Inflammation of the Bladder

I have suffered for the past nine months with inflammation of the bladder, frequent urination, burning and scalding. I am thirty-six years of age, married, and a farmer. G. J. R., Montana.

YOUR doctor seems to be doing all that can be done for you. Have you tried a one-grain tablet of methylene blue, morning and evening? If not, try it.

Chronic Diarrhea

I am an old soldier, and had chronic diarrhea when in the war. I have to take salts every morning to liquefy my stools. Is there anything better? G. B., Maine.

ATABLESPOONFUL of Russian or paraffin oil at night or at night and morning would produce the effect desired.

To Cure Stammering

HS., MICHIGAN, writes: "I wish you would give me some information as to the proper method of breaking myself of stammering. I have been afflicted for nine years, am now fourteen years old, in the ninth grade, and learn easily. It is most difficult to speak words beginning with b and d. I was badly frightened when I was three



There's a good way to keep growing boys and girls healthy and happy and that is to give them

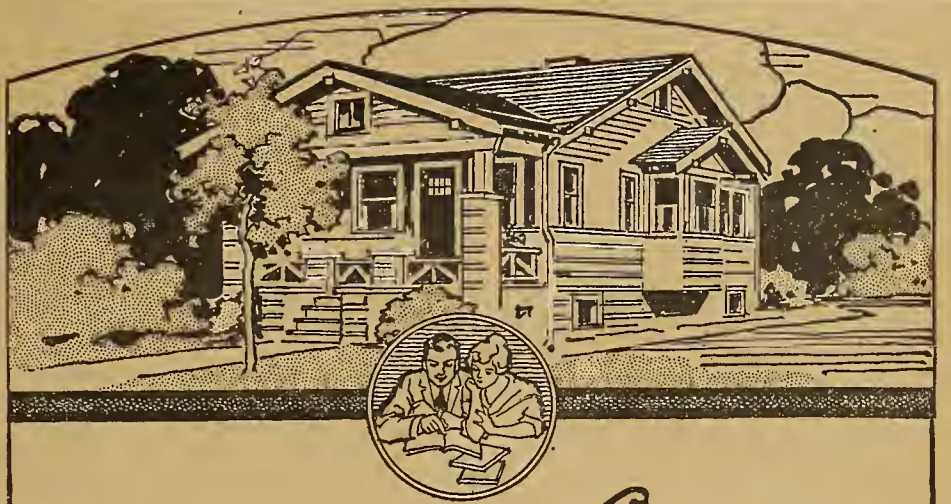
Grape-Nuts

for breakfast.

This wonderfully nourishing food has a sweet, nutty flavor that makes it popular with children.

One of the few sweet foods that does not harm digestion, but builds them strong and bright.

At grocers everywhere.



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The author of that was not joking. It takes years to learn how to do an important thing well. For a little over fifty years we've been making good woodwork. Each year has brought its lesson, till now we know of no way to make CURTIS on woodwork mean more in Service and Quality.

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Wet Weather Means Dry Soles with Neolin Soles

Well, it's odd job day around the farm, and raining like everything—but don't you care! Into your Neolin Soles right away—they are dry as the old duck's back; and as for lasting—!

Better than leather. Science planned them. Better than leather. Science made them.

Science made them comfortable, too.

Buy Neolin Soles. Save with Neolin Soles. Give yourself the spring and buoyancy of Neolin Soles—which never draw the feet. Ease mother's floor-tramps with Neolin Soles. Ease the children's shoe-bills with Neolin Soles. Have everybody to church in them, Sundays, too; for city folk are wearing Neolin Soles for their lasting, lasting, lasting looks.

Insist that your shoe dealer get Neolin Soles for new shoes or as new soles for old shoes. The same quality on any price of shoe. Remember, Neolin.

Avoid imitations, so mark that mark; stamp it on your memory: Neolin—

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Better than Leather

The Woman Motorist

When Mother and Daughter Learn to Become Good Drivers

By ESTHER ARNOLD

THE ideas of a farmer's daughter on driving a motor car may not have very much mechanical merit, but the appearance and condition of the family automobile depends largely on the women of the household. This is true especially during the seasons when farm work is pressing and the men are obliged to put every possible hour of their time into field work that will not wait.

On such occasions a man's time is more valuable than a woman's, because he can do work beyond her strength. But if she can drive the car well, look after it so it is always ready to go, use it for errands, light marketing, and for getting extra help for haying and harvest, it will save time for the men. Father not only admits it to me, but openly tells his friends that he would never have known the convenience of a car for the family if I had not urged him to let me have one.

Having no brothers old enough to take the initiative, and as Father was proud of his driving team, I was nearly two years in persuading him that we ought to have a machine. But perhaps that time was well spent, for during it I learned about automobiles from friends who had cars and took me riding. I have a small library of automobile catalogues, and have learned to fill the tread cuts of my tires, take my spark plugs apart and clean them, and make various other little repairs that require time but are not particularly difficult. This saves a good deal of expense.

The car was a birthday present, and the machine is consequently my own, although we all use it, and Father pays for necessary important repairs just as he would feed a horse if I had one of my own. Nor are the repairs large, as you shall see. While a woman seldom has the mechanical mind of a man, I have noticed that as a rule women are content to drive more slowly and demand less of a car than most men drivers. To drive well, of course, requires experience, which means more than just a few lessons. It means constant practice over bad roads as well as good ones. Simply holding the wheel for a little while in traveling a smooth pike, with someone beside you telling just what to do, is not driving. It gives mistaken confidence; a driver must rely entirely on herself before considering that she has really learned to drive well.

Before Driving on a Public Road

To women and girls who are about to learn I want to make a few suggestions. Be master of it before attempting to drive it alone on a public road. By this I mean, be able to start and stop, shift gears nicely, and turn around in a narrow space if necessary. It is a good plan, also, to know something about the cooling and lubricating system so you will know when the car needs water and oil. But if you drive a car when you have only half mastered it and accidentally bump into a cow on the road by failure to stop in time, as I once did, you will find it hard to regain confidence, and when you drive home with a bent fender you may have embarrassing explanations to make.

There is no work about a car that is particularly hard. Jacking a car up to change a tire is perhaps the most strenuous of all. But nowadays tire troubles are rare and, even so, jacking up a car is no more work than pumping water, at which most farm women have had considerable experience.

Neighbors have asked me how I manage to keep the car from getting shabby, as so many new cars soon become when driven through country mud, also about keeping down repair bills, because 60 cents an hour, the rate charged by our town garage, has made some of our friends hesitate about getting a machine. The best way I know of to keep down repairs is to prevent the car

from needing repairs. And this depends on plenty of oil and grease at all times, and keeping the machine in good adjustment. Let me illustrate.

An owner of a brand-new car noticed his oil was low and, unwilling to stop a few moments to replenish the supply, took the chance of getting home. When halfway between two towns, the motor stopped with a jerk. The overheated pistons had stuck in the cylinders, and his final payment for sending the engine back to the factory, towing in, and other expenses was \$200.

Two more careful car owners of my acquaintance have gone through their first season with a cost for repairs in each case of just 25 cents. In my own experience the expense of motoring may be kept extremely low by the following methods:

Be perfectly familiar with all parts of the car, and at least once a week look it over carefully, paying special attention to the tires, steering gear, and loose nuts.

When driving, stop the car at the first sign of an unusual sound, and get

give such a coating, though it is less durable than wax. But either one will shed rain and snow and will not allow mud to stick tight enough to spoil the luster even though the mud freezes on. Clean cheesecloth is the best material I have found for rubbing the finish to a nice polish, and a piece of cheesecloth well saturated with wax or oil may be used over and over as long as it remains clean.

I seldom use water and never use strong soap. Water, except when used in small quantities to soften hard mud, usually causes streaks, and strong soap dulls the luster of a nice automobile finish.

Get Hints from Your Friends

A friend who thoughtlessly washed a new car with hot soapsuds is still regretting the experience and is riding in a dull-looking car. Also the use of old dirty cloths that are full of grit is another excellent means of ruining a handsome finish. A few minutes spent each week in removing dust and mud keeps the car looking better than a thorough wash and polish at longer intervals.

Do all the mechanical work that you fully understand and for which you have equipment. You will be able to do more and more the longer you own the car. Consult your friends and neighbors who have similar cars. A hint from them may save you a repair bill. Inquire as to who does their repair work. A small, modest shop frequently does better work than a glass-front garage.

Finally take your car to a repairman who knows and understands that particular make. Tell

him what seems to be the matter and what you want done. That will save his time in getting to work on it.

My car has traveled close to 10,000 miles and is now getting along toward its third year, but by observing the points just mentioned the cost of upkeep averages between \$2 and \$3 a month for repairs and tire sundries. It has never been in a repair shop overnight. I have never been delayed on the road more than twenty minutes from any cause.

Garments of Praise

By Mabel E. Phillips

THE club of which I am a member was debating on a yearly motto, and we finally decided upon this: "The garment of praise for the spirit of heaviness."

So for one year we tried wearing "the spirit of praise" as a garment, and not to lay it away to become moth-eaten or for a shroud for the dead.

First, we are to be thankful to God for the common blessings of health, food, sleep and work; to tell Him we are glad; to be ready to say "Thank you" for the everyday gifts of the Father, as well as the uncommon blessings.

Next, to say a word of praise about everyone. There is always something to be truthfully said in one's favor.

We found that looking for perfections, things to admire will grow on one. It will become a habit.

The spirit of gossip, of telling an unkind bit of news is no longer attractive to us.

The girls in our club soon became the most popular in town, and often when with a crowd of young people our girls, by their kindly statements, could stop a tide of scandal from going farther.

With each and all of our associates, instead of post-mortem praises, post-mortem bouquets, we gave them our kind words, our flowers, while living.

So we are daily weaving our garment of praise. A garment of such beauty and richness that cloth of gold seems faded and ugly beside it; and life seems brighter and more worth living, and we count our friends by legions.



A good wax or oil applied with a clean cheesecloth and rubbed to a polish is an excellent means of protecting the finish from mud and dust

out and see what causes it. Every hundred miles see that you have plenty of gasoline, oil, and water.

Have your own garage and keep your car there. Buy high-grade oil in at least five-gallon quantities, thereby saving fully 25 per cent.

In cold weather keep too much rather than too little alcohol in the radiator to prevent freezing.

Have convenient wrenches suitable for all bolts and nuts on the car, including a good spark-plug wrench.

Carry two extra spark plugs, two extra inner tubes, one extra casing, a blow-out patch, a kit of miscellaneous tire sundries, a good jack, and a good pump.

Watch the road carefully, and avoid running over boards, trash, pieces of tin, or anything glistening in the road.

Do your own tire-changing, and fill your own tread cuts. Vulcanizing may be done at home, but considering the initial cost of the equipment, service at a reliable tire shop is about as economical for the average motorist.

Keep tires fully inflated, and when they finally wear out get new ones. Don't waste money on old, weak casings.

Take care of the body by wiping it with cheesecloth moistened with a high-grade auto polish, or by keeping it well waxed. Don't use woolen or dirty cloths, nor strong soap or hot water.

Enamels, wax, varnishes, oils, soap and water, and polishing liquids are all variously used by persons who wish their cars to retain a fresh and youthful appearance. These are applied in many ways with a considerable range of success. A good many car owners will give the finish of their machine careful attention while it is new, but after a time this enthusiasm disappears. I have in mind a person who used to carry a duster with him to dust the machine off before he entered a town and who now allows the mud to stay on the car for weeks at a time.

To keep my machine looking at least fairly well all the time at minimum cost and with least labor, I have found that some sort of protecting coating must be given the highly finished body. A good automobile polish or oil will

JOHN DEERE IMPLEMENTS

Van Brunt Grain Drills



Van Brunt Drills plant any small seed.

Amount sown per acre easily regulated.

Direct, double, gear drive from the continuous axle.

High-grade discs with bearings guaranteed to last lifetime of drill. Scrapers keep discs clean.

Pressure springs individually adjustable to make uniform depth furrows.

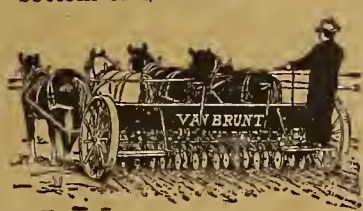
Either single or double discs.

Grass seeder attachment which will drill or sow broadcast can be furnished.

Van Brunt Drills are particularly noted for their adjustable gate force feed. Each feed cup plants exactly the same amount. The seed is com-

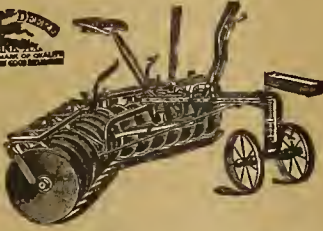
pelled to leave the seed box in even, continuous streams without bunching or choking up. All the ground is seeded.

The Van Brunt Single Disc is the first successful single disc grain drill with closed delivery. The seed is protected by metal seed tubes, disc openers and the disc boots until it reaches the bottom of the furrow.



BETTER FARM IMPLEMENTS

How To Use Them



John Deere Model "B" Disc Harrow

Using a disc harrow before plowing pulverizes surface lumps, works trash into the seed bed and prevents

The Model "B" pulverizes at even depth its entire width.

Patented spring pressure third lever—inner ends of gangs can be given light or heavy pressure to disc over ridges or cut out dead furrows without burying the harrow.

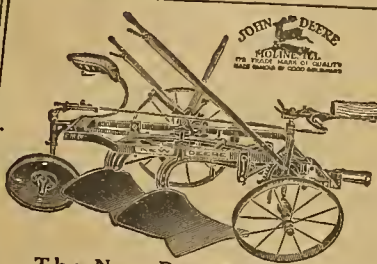
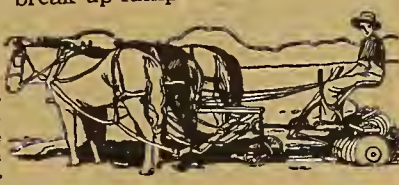
Independent gangs. All tendency of gangs to crowd to one side is easily overcome by giving them the proper relative angle.

Flexible—only that part of the Model "B" harrow passing over an obstruction is lifted out of the ground.

Rear section can be furnished to make a double action harrow.

the escape of moisture. Then when the furrow slice is turned, the trash decays rapidly and no large air spaces are left between bottom of furrow and the turned furrow slice. Water in the subsoil can make its way into the seed bed and plant roots can penetrate to deeper soils.

Discing after plowing removes the weeds, and makes the seed bed compact, but not hard. The discs break up lumps of soil.



New Deere Light Draft Gang Plow

For twenty years the New Deere Gang has had the good opinion of enough farmers to make it the one best seller—

The New Deere Gang is the most widely used plow of its type.

It is light draft, durable and is equipped with John Deere bottoms, known all over the world for superior work, easy scouring and light pulling qualities. It cuts and turns full width of furrow.

A simple, practical foot lift and auxiliary hand lift lever—easy to raise bottoms out of the ground.

John Deere Quick Detachable Shares—great labor and time savers. Share can be taken off easily, only one nut to remove.

And, today, it is the same plow it was twenty years ago, with the usual minor refinements added.

Correct in design, always representing the highest development of the plow-maker's art, the New Deere Gang is a leader, and has been every single year for twenty years.

Go to your John Deere dealer's and look this plow over—you will readily see why it is such a popular plow.



To designate and brand their goods, "Deere & Company," use the "leaping deer" trade mark. It is the best known implement trade mark in the world.

The permanent prestige of John Deere implements has been maintained by the company's strict adherence to principles of manufacture that originally made the goods popular.

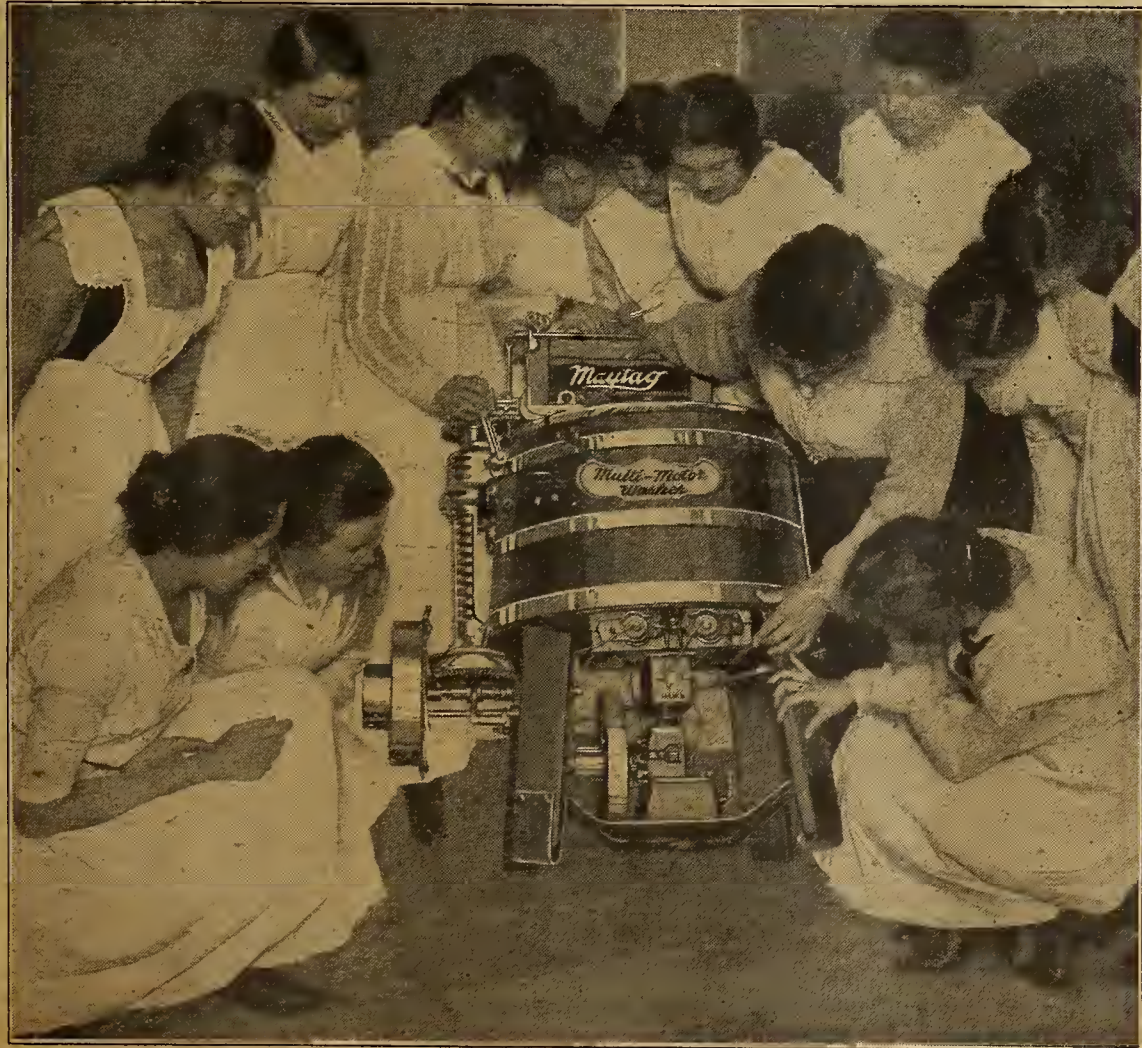
The "leaping deer" trade mark is Deere & Company's stamp of approval. It distinguishes John Deere Implements from inferior goods. It means that the implement was made in a John Deere factory, in the John Deere way. It is a guarantee of satisfaction and an insurance policy against disappointment.

Look for the John Deere trade mark when you buy.

JOHN DEERE - - MOLINE, ILLINOIS

-At Nebraska

By demonstration in actual laundering conducted regularly as a part of the course in Home Management, the *Home Economics Division of the University of Nebraska, College of Agriculture*, proves that the laundry requirements of the modern country and suburban home are best served by the



Maytag Multi-Motor Washer

Swinging Reversible Wringer

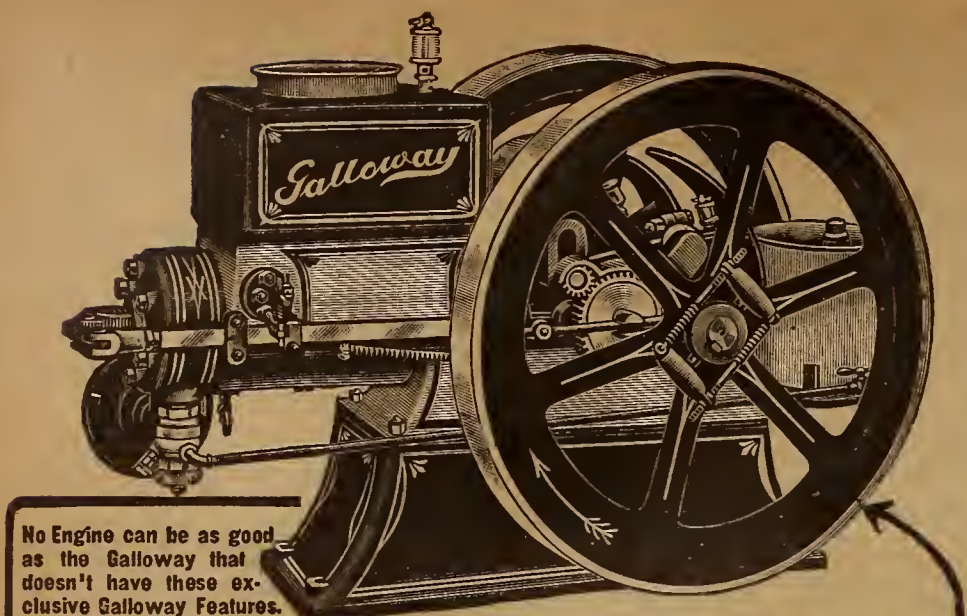
The instructors and pupils consider performance first. They weigh evidence of merit. And they find in the Maytag Multi-Motor the supreme type of power Washer, bringing to the rural home the same convenience and thoroughness in laundering that the owner of a Maytag Electric Washer enjoys. The Multi-Motor is self-operated, utilizing gasoline for power. Safe, simple, economical.

FREE The Maytag Laundry Manual is a valuable text-book on laundering. You may have a copy free—just a post-card request brings it.

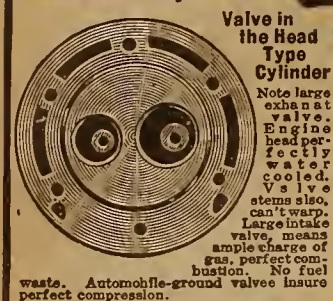
Standard There's a Maytag Washer of every type—hand, power-driven, electric—all built to the enviable Maytag standard.

THE MAYTAG CO., Dept. 164, Newton, Iowa
Branches and Warehouses in Most Principal Cities

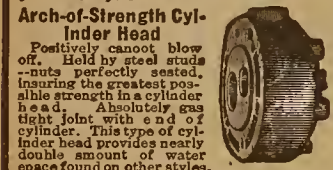
Dealers: Our proposition is different—profitably so. Write!



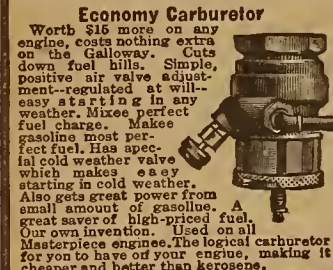
No Engine can be as good as the Galloway that doesn't have these exclusive Galloway Features.



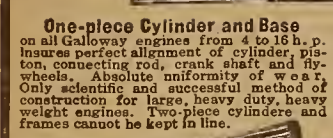
Valve in the Head Type Cylinder
Note large exhaust valve. Engine head perfectly cooled. Valve stems also, can't warp. Large intake valve, means ample charge of gas, perfect combustion. No fuel waste. Automobile-ground valves insure perfect compression.



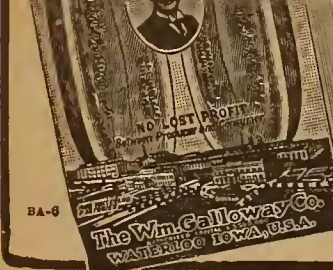
Arch-of-Strength Cylinder Head
Positively cannot blow off. Held by steel studs—nuts perfectly seated, insuring the greatest possible strength in a cylinder head. Absolutely gas tight joint with end of cylinder. This type of cylinder head provides nearly double amount of water space found on other styles.



Sure-Fire Make and Break Igniter
Webster oscillating magnet makes line-hot spark. Needs no batteries. Absolutely sure fire. Weather does not affect it. Eliminates all ignition troubles. Thousands in continual operation for years without replacing igniter points. Gives least trouble from soot or carbon of any type igniter we ever used. In using this type on your engine at any time of year, winter or summer.



Economy Carburetor
Worth \$15 more on any engine, costs nothing extra on the Galloway. Cuts down fuel bills. Simple, positive air valve adjustment—regulated at will—easy starting in any weather. Mixes perfect fuel charge. Makes gasoline most perfect fuel. Has special cold weather valve which makes easy starting in cold weather. Also gets great power from small amount of gasoline. A great saver of high-priced fuel. Our own invention. Used on all Masterpiece engines. The logical carburetor for you to have on your engine, making it cheaper and better than kerosene.



One-piece Cylinder and Base
On all Galloway engines from 4 to 18 h. p. insures perfect alignment of cylinder, piston, connecting rod, crank shaft and flywheels. Absolute uniformity of work. Only scientific and successful method of construction for large, heavy duty, heavy weight engines. Two-piece cylinders and frames cannot be kept in line.

LOOK! THIS 1917 MODEL!

Go over it point by point, feature by feature, compare it side by side with any horse power or the that no better engine have told you to compare the Galloway engine with other engines! That's what my customers have done and that's why the annual sales of Galloway engines run up into the thousands upon thousands. For hard, tough jobs, for year in and year out satisfaction they have no equal at higher or lower prices. If you pay less for an engine than a Galloway Masterpiece you could not possibly be getting as good an engine. If you pay more it would only be paying too much. Large bore, long stroke, simple design, heavy weight, mechanical perfection in their building make them power masters in their field. No matter what size or style engine you want I build them here in Waterloo in my own great chain of factories to fill every need. My 13, 24, 4 h. p. and other sizes are just as scientifically designed, built, machined and finished as my mogul engines from 12 to 16 h. p.

SIX 1917 SELLING PLANS --CASH OR TIME

No matter which way you want to buy I have a plan that will suit you—Cash, Bank Deposit, Half Cash—Half Note, All Note, Installment and No Money Down, to responsible people. Galloway's guarantee is absolute satisfaction or your money back, and he pays the freight both ways. Remember my

\$25,000 LEGAL BANK BOND ABSOLUTELY PROTECTS

you and every one of my prospective customers and proves my willingness to have every claim and statement I make fully investigated. I want you to try a Galloway engine on your farm—in your own shop. That's why I have prepared my new 1917 special proposition. I want a Galloway Masterpiece 1917 model gas, kerosene or distillate engine in every township in every state between now and June 1st, and my new 1917 prices and selling plans will get them.

NOTE 1917 IMPROVEMENTS

Adjustable bearings, no lost motion, develops way above rated horse power. Economy carburetor, worth \$15 more on any engine, costs nothing extra on the Galloway—cuts down fuel bills. Large valves in head, exactly like highest class automobile motors, perfect scavenging, admits perfect combustible mixture. Double ball governor. Large, heavy flywheels. Big bore, long stroke, heavy weight, perfect balance, smooth running. Perfect lubrication, winter or summer. Webster magneto (extra) supplies blue-hot spark. Make and break igniter, never misses fire. Easy started, no cranking, needs no batteries. Cylinder and water pot frost proof. Galloway engines honestly rated, scientifically, accurately and handsomely built. Our description the truth. Shipments made from Waterloo, Council Bluffs, Kansas City, St. Paul, Chicago, wherever is nearest you.

GET THIS 1917 BOOK ABOUT ENGINES

I want you to have this new book about the famous Galloway Masterpiece engines. It tells you how to pick out, size up and judge an engine. Gives you engine secrets and facts. Tells why to insist on heavy weight, large bore, long stroke and low speed—why light weight, high speed engines are not to be compared with Masterpiece engines and why you are asked four profits for some engines no better. Tells why we sell direct from factory to farm or shop at wholesale. How to install an engine and hook up machinery. How Galloway engines are built. How to lay out and build a cheap, efficient power house. Why our prices on high class stationary and portable engines and saw rigs are so low considering quality. The truth about engines is all set down in black and white. This book is a guide to saving money on every farm. That's why I want you to get it. If you expect to buy an engine I'll pay the postage and he glad to send the book. Ask today. A postal will do. Address me as below.

WM. GALLOWAY, Pres.

THE WM. GALLOWAY COMPANY
395 Galloway Station Engine Manufacturing Waterloo, Iowa
Specialists



Automobiles

Oversize Tires

By W. B. Ellsworth

THE fall of 1912 we bought a car that weighed between 2,400 and 2,500 pounds and equipped with tires 32x3½ inches. I could have had oversize tires for \$30 extra, but did not get them. In two years we drove between 6,000 and 7,000 miles and used up six casings. All our tire troubles were due to blow-outs.

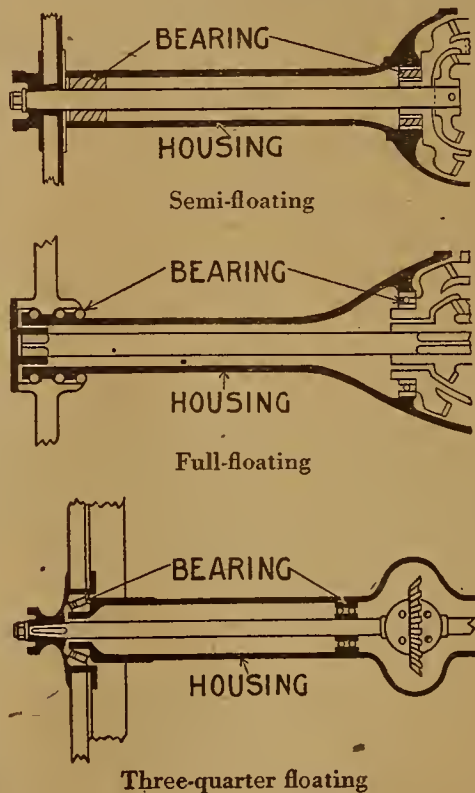
In November, 1914, I put two oversize tires containing oversize tubes on the rear wheels. For persons not familiar with the term "oversize tires" I will explain that the oversize of a 32x3½-inch tire is 33x4 inches, but it fits the same rim. Those tires, after more than two years' use, are still on the car, with part of the original air in them. The distance traveled was about the same as before.

In the spring of 1915 I bought oversize casings for the front wheels. That made a total of eight of the regular size casings I had used up. Up to the present time three of the oversize tires have never been off the rims, and the other was taken off just once because of a defective tube. This covers a period of over two years without a puncture or blow-out, and while the mileage has not been large, it has been over all kinds of roads and driving conditions, winter as well as summer. In this case the oversize tires have paid for their slightly greater cost many times over.

Axle Construction

By W. V. Relma

THE question is often asked, "What is a full-floating rear axle?" While it sounds a little as though it might belong to a boat, it is an automobile part.



There are three distinct types of automobile axles. The semi-floating type (or live axle) shown in the first sketch carries all the weight of the car, propels the car, and receives the road thrust as well. This is the most common type in use. In the full-floating type, in the second sketch, the weight is carried on the axle housing, which also takes the road strain. The axle merely transmits the power.

The three-quarter floating, as will be observed from the third illustration, is a compromise between the two other types. Of course there are many variations of these types.

A full-floating axle has the additional merit of safety; for even should the axle break under a great strain, the wheel would not come off, since it runs entirely on the housing.

Kerosene in "Gas"

WHICH is more economical as an automobile fuel, ordinary gasoline at 20 cents a gallon, or high-test gasoline at 25 cents a gallon? Also, is it

practical to mix kerosene with enough high-test gasoline to make a mixture having the same Baumé reading as ordinary gasoline?

Ordinary gasoline at 20 cents a gallon would be the most economical of the three choices proposed. High-test gasoline makes the motor easier to start, especially in cold weather, and makes a slightly more responsive engine, but it would not give enough better service in ordinary running to justify the extra expense.

Mixing kerosene and high-test gasoline would be useless economy except possibly for long trips. Such mixtures are best tried by experts, but the average car owner will do well to be satisfied with gasoline. One experienced driver who tried mixing kerosene and gasoline says: "Let it alone if you value your disposition; it makes a motor less responsive to the throttle, and you have less power. Ordinarily I use about \$2 worth of gasoline a week, and might possibly save 20 cents by mixing kerosene with it. But it doesn't pay if I take my state of mind into consideration."

Other users report better success, especially in warm weather, but the practice of mixing kerosene with gasoline is a doubtful economy with the ordinary type of carburetor.

Kinds of Auto Bodies

THE difference between a roadster and a speedster and between a sedan and a limousine has been asked by a reader who says his automobile friends do not agree in their explanations.

A roadster is an open car seating two or three occupants and may have extra seats on the rear deck. It is usually equipped with a top, side doors, and can be enclosed with side curtains.

A speedster is a name applied to a car having a light, low body and generally seating two people. There are no side doors and the top is frequently omitted. The body is often so small that it is impractical in most cases effectively to enclose a speedster with side curtains.

A sedan is a closed car seating four or more occupants all of whom, including the driver, are in one compartment.

A limousine is a closed car seating from three to five people inside and having a driver's seat outside. The driver's seat is covered with the top of the car.

Among the various other types of car bodies which are sometimes confused are:

Coupe, which is an enclosed car seating two or three people, though a fourth seat facing backward is sometimes added. The top and sides are rigid and cannot be folded or let down. A convertible coupe is a roadster with a detachable coupe top.

Coupelet, which is similar to a coupe except that it has a folding top and disappearing panels of glass in the full-height doors.

Open sedan, which is constructed so that the sides may be removed, leaving the side space entirely clear.

Touring car, which is an open car seating four or more people—usually five or seven—with direct entrance to tonneau.

Salon touring car, which frequently has only one door on each side, the front seats being reached by a passage between them.

Convertible sedan, which is a salon touring car equipped with a detachable sedan top.

Rim-Cutting Without Cause

"I HAVE been careful to keep my tires well inflated," writes an Ohio car owner, "but in examining one of them lately I find that it has begun to rim cut. The fabric is cut quite badly in several places along the bead." He explains that it is a clincher tire which has been run 3,000 miles.

The indications in this case are that he ran the car on the rim, some time ago perhaps, and neglected to smooth the edge of the rim before putting the tire on. Running on the rim even over good roads roughens the edge of the rim and sometimes causes sharp edges and metal slivers.

Or, perhaps, when the tire was put on the rim it was not perfectly free from grit and rust, which affected the rubber covering and exposed the fabric to wear. The best course to pursue is to have an experienced tire repair man examine the tire and be guided by his recommendation. Lacking such service, I should advise coating the injured places with some liquid rubber preparation to keep out moisture and prevent rotting. Then smooth the rim carefully, put on the tire, and use it till it is worn out. If the places become worse, strengthen the casing with inside blow-out patches. Another course, if you suspect the tire to be defective, is to ask the dealer for an adjustment.

Get FITZALL Collars Right Away

Don't fail to equip your horses with Fitzall collars right away. Your heavy work is coming on. Keep your horses in condition to do it. Put on Fitzall collars. They fit. As soon as your horses harden into their work and their necks grow smaller, you can take up this collar to fit perfectly all the time. No sweat pads ever are needed. Try them and see how much better your horses do.

FitZall Adjustable Collars

Instantly Adjusted to Fit Any Horse—Fat or Thin

Easy to use. Adjusted quicker than you can put on ordinary collars. Most economical. Sold by dealers for no more than ordinary collars of the same grade. Absolutely guaranteed. If your dealer cannot supply you, we will ship direct upon receipt of the price. Send for our new book "The Contented Horse," by Dr. E. L. De Seltzer, V. S., V. D., State of Maryland. Tells all about how to care for horses. Describes and lists Fitzall collars and the Famous Master Brand Harness. It's free. Write for it today.

John C. Nichols Harness Mfg. Co.

Manufacturers and Distributors

677 Erie Street

Sheboygan, Wis.

Makers of the Famous Master Brand Harness—America's Best



4 Sizes in Each Collar
17 to 20
19 to 22



A Retreating Problem

By Calvin Fraser

"WHAT is the best thing to do with a tire that has worn down to the fabric but has never blown out or given any trouble?" asks a car owner who says he has driven the tire 6,000 miles.

A definite opinion in such matters cannot be given without first examining the tire. If the tread has simply been worn off and the fabric has not been allowed to wear or rot, the tire may be retreaded for about half the cost of a new tire, and it will give nearly as much service as a new tire.

Some tire dealers will make a liberal allowance for such a tire toward the purchase of a new one. Or a reliner may be placed inside of the worn tire to strengthen it, and it will perhaps give many hundred miles more of service. Most car owners appreciate the satisfaction of good tire equipment, and either have such tires retreaded or trade them in toward the purchase of a new one.

Chains Become Loose

By Miller Sanderson

"I WANT to ask a question about the application of tire chains," writes a car owner who apparently has followed directions somewhat too literally. "I have been told," he says, "that chains put on too tight will injure the tires, but when I put them on slightly loose, according to directions, they soon begin to strike the fenders."



Chains should be just loose enough to creep around the tires. Never let them strike the fenders

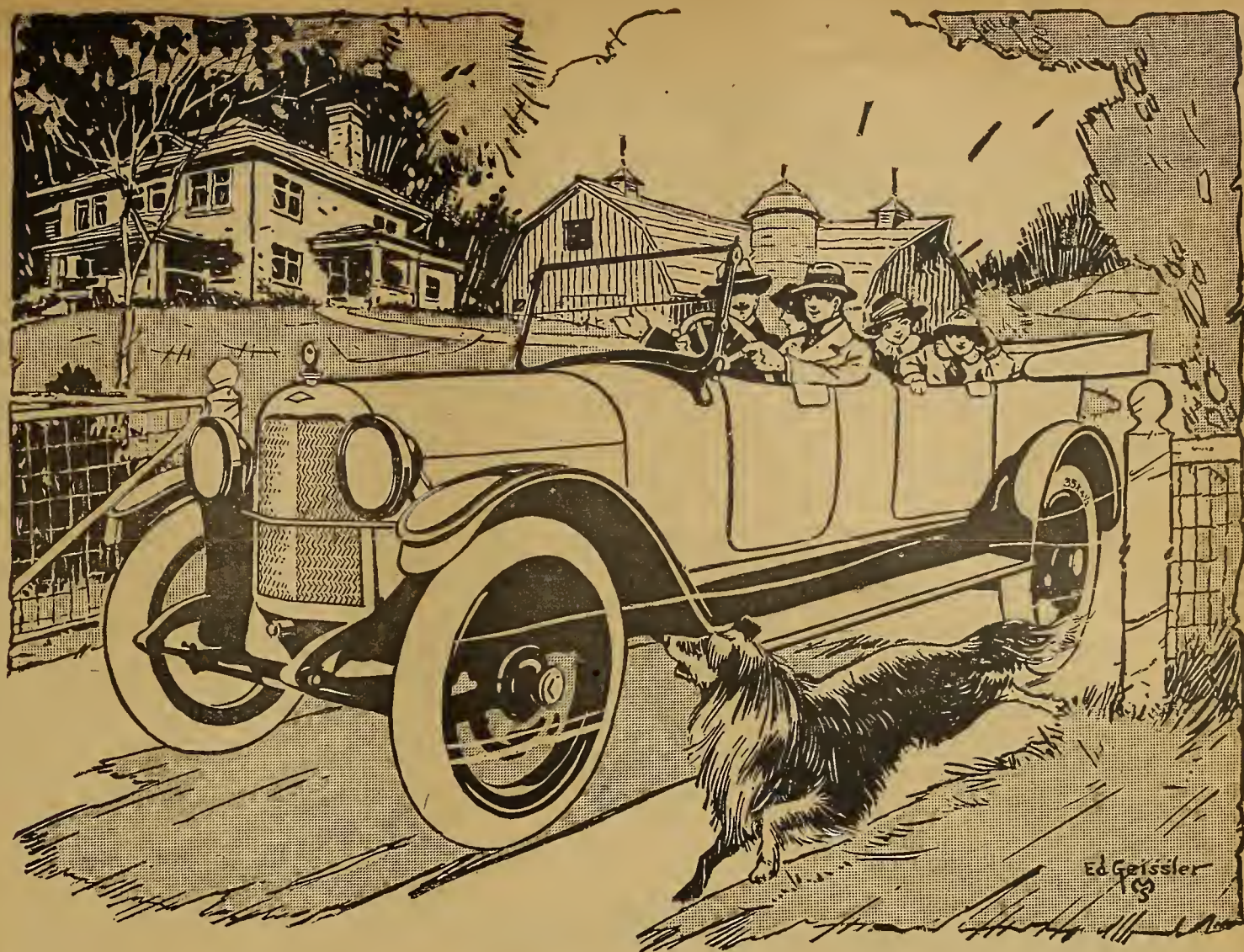
In applying chains to tires it is almost impossible to get out all the little kinks. For that reason experience soon teaches that chains put on to fit rather snugly will in actual use soon be plenty loose enough. This means that they should be able to creep around the tire gradually, so wear will be distributed. When a set of chains has once been adjusted satisfactorily, mark the links which receive the hooks and hook into the same links whenever the same chains are later applied to the same tires. Put chains on both rear tires. If only one chain is used, it will result in excessive wear on the differential.

Chemical Carbon Cleaners

"WHAT is your opinion of the use of chemicals for cleaning the carbon from an automobile motor as compared with scraping it out?" This question comes from a man who says he has a four-cylinder car with removable engine head.

Here is a matter on which opinions differ considerably, and in any case the results depend on the manner in which the work is done. Removing the engine head and scraping the carbon out gives you an opportunity to see the condition of the cylinders and valves, to grind the latter, and to do a thoroughly first-class job. Regardless of the method chiefly used, it is a good plan to look at the inside of the engine every 5,000 miles and clean carbon and grind valves at the same time.

If the car has plenty of power, which indicates the valves are in good condition, a good carbon cleaner free from injurious chemicals will eliminate the carbon knock and do a very good job. In cold weather clean only one cylinder at a time and run the car at least ten miles before you clean the next cylinder, or you are likely to have difficulty in starting. If your car has a cut-out on the exhaust pipe, run with the cut-out open for several miles when the car is used the first time after the cleaning liquid has been put in the cylinders. This will prevent the loose carbon from collecting in the muffler.



PAIGE

The Most Beautiful Car in America

Power, Beauty and Dependability

FEW of us have the need or desire for a racing car.

We are quite content to let the "other fellow" take his chances at 70 miles an hour—while we spin along comfortably and safely with the speedometer needle registering 25 or 30.

But every man wants Power in his automobile—and particularly the farmer.

It is good to sit behind a motor which responds eagerly—buoyantly—to the slightest touch of the throttle.

It is good to know that you need only "step on" the accelerator—and the steepest hills will flatten out like smooth boulevards.

It is good to realize that you command a vast store of reserve power which will easily take you through the heaviest sand roads "on high."

It is good to know that your automobile is a staunch, sturdy, dependable help-mate—not a treacherous weakling that will lay down when the real work begins.

In a word, it is good to own just such a car as the five passenger Paige Linwood "Six-39." This car is a thoroughbred—every inch of it.

It is just as handsome as an automobile could possibly be, and easily capable of doing 60 miles per hour if you desire to travel that fast. But—first and last—it is made for work—consistent work—day in and day out work.

Remember, Paige owners don't have to make apologies or "offer excuses." Their cars are out of commission at one time only—when they are locked up in the garage at night.

And—best of all—you can readily establish these facts for yourself.

All that you need to do is get in touch with the nearest Paige dealer.

Let him prove his case. Let him introduce you to men who have invested their money in Paige cars. Listen to their experiences—ask for their honest opinions.

Then, you will know whether Paige cars are reliable under all circumstances.

Then you will know whether Paige cars are economical to maintain.

Then you will know whether Paige is the type of car that you have been looking for.

Do this—while the Dealer can still make immediate deliveries.

Linwood "Six-39" 5-passenger	- -	\$1175 f. o. b. Detroit
Fairfield "Six-46" 7-passenger	- -	\$1375 f. o. b. Detroit
Stratford "Six-51" 7-passenger	- -	\$1495 f. o. b. Detroit
Complete Line of Enclosed Cars		

PAIGE-DETROIT MOTOR CAR COMPANY
238 McKinstry Avenue, Detroit



You cannot do a carpenter-like job unless your tools are carpenter's tools

Few carpenters will attempt to work with poor tools. That is one reason why they do workmanlike jobs. Every time you try to repair a fence or a shed with poor tools you are attempting more than most carpenters would undertake.

The tool a carpenter chooses is a good tool for you to buy. Most carpenters have used Disston Saws all their lives.

DISSTON SAWS AND TOOLS

Disston trowels, files, screw-drivers and other tools are all of the same Disston quality.

Send for free booklet "Disston Saws and Tools on the Farm." It tells you how to select, use and care for saws and other tools and how you can cut down your farm expenses by getting out your own timber with a Disston circular-saw. Ask your dealer for Disston Saws and Tools.

HENRY DISSTON & SONS, Inc. Philadelphia, U. S. A.



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SPLIT HICKORY VEHICLES

GREATEST BUGGY BOOK

FREE-Postpaid

My new 1917 Vehicle catalog is ready. This big book contains the finest and biggest selection of buggy bargains ever offered. Over 150 new styles to choose from—more than you will find in 20 stores—all offered at prices that save you \$20 to \$40.

SPLIT HICKORY

The world's finest vehicles—leaders for 17 years—more than a quarter of a million now in use. All guaranteed 2 years—all sold on 30 days' free road test to prove the quality and convince you that it is the best buggy you can buy. This year I am showing 25 styles of my famous Split Hickory Special. You ought to see them and the prices I quote. Write for Free Catalog TODAY. Address: H. C. PHELPS, Pres., THE OHIO CARRIAGE MFG. CO., Station 23, Columbus, Ohio. Also write for my Farm Wagon and Harness Catalogs.

THIS is my Split Hickory Special—the finest buggy ever built. Has molded steel auto seat—never-leak top—genuine Split Hickory Wheels, Shafts and Reaches. Is cost, oil lead, guaranteed painting.

National Fence

This fence is built with one piece stay wires—has a gradual and effective tension curve placed at every intersection. The National lock or knot is formed in the stay wire and fastened within the tension curve, thus affording

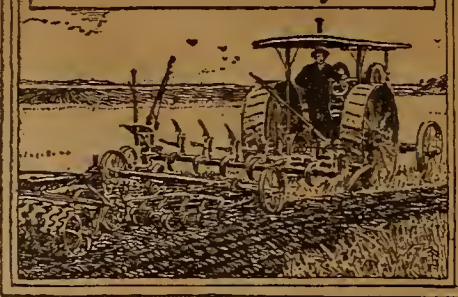
great elasticity and prevents slipping of wires. The more the fence is stretched the more firmly the stay is held in place.

American Steel Fence Posts last a lifetime. Hold fence secure against all conditions. Sent FREE—Our book "How to Build a Fence."

Dealers Everywhere

AMERICAN STEEL & WIRE COMPANY
Chicago New York Pittsburgh Cleveland Denver
Awarded Grand Prize at Panama Pacific International Exposition. The Supreme Award of Merit

Machinery



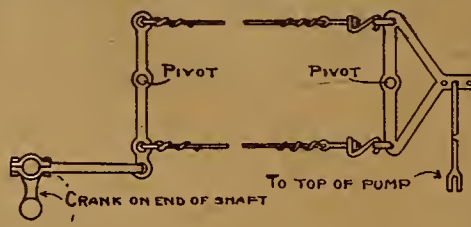
Long-Distance Pumping

By Leo Matthews

WHEN people consider buying a gasoline engine to help do the chores they are sometimes confronted with a perplexing problem, usually something like this: Shall I put my engine out by the well, or shall I dig a new well near the engine house, or had I better buy two engines?

A neighbor of mine has solved the problem in a very practical manner. He built his power house within a hundred feet of his dwelling. The engine drives a line shaft which extends the entire length of the building. A pulley on this line shaft turns a counter shaft at a greatly reduced speed.

The end of this second shaft extends through the wall of the building and is shaped into a crank which makes a six-inch circle as it revolves. A connecting rod working on the crank operates a lever which is pivoted through its cen-



ter to the side of the building. Fastened in links at the top and bottom of this lever are heavy wires which extend 300 feet to the well. These wires are 10 feet from the ground and do not interfere with anything.

At the well the extension wires are secured to eyebolts which are linked to a triangular-shaped lever. This lever is pivoted in the center of the long side to a plank which is bolted to a couple of posts in such a manner that the outer arm of the triangle is directly over the top of the well pump. A pump rod is hooked into a hole in the triangle arm, and is long enough to fasten to the end of the pump-plunger rod.

It will readily be seen that as the crank turns slowly around the two levers will work back and forth on their pivots and consequently raise and lower the pump plunger.

This device has proved practical and no great skill is required to make one. A man that understands the principle can use his own dimensions, but must remember that the crank circle will mainly determine the stroke of the pump. The wires must be kept tight to prevent jerking. Also, the speed of the crank should be very slow, since each turn of the crank means a stroke of the pump.

Sound Tractor Advice

LESS than five years ago one of the first questions asked about a tractor was, "Will it work?" Now the principal question is, "How well will it work on my farm?" R. L. Patty, a South Dakota engineering specialist of the state college of agriculture, has some interesting remarks to make on this subject, and his main conclusions are: "Don't get too small a tractor."

"Whether a tractor will pay or not," he says, "depends somewhat on the mechanical ability and managing ability of the farmer owner. But the size of a tractor is going to have something to do with it too. The engine should be big enough to run the ensilage cutter, fodder shredder, corn sheller, and perhaps the grain separator. An internal combustion engine should not be forced. You should have surplus capacity at all times. Forcing the engine shortens its life."

Repair Man's Negligence

By A. H. Brockett

WHEN I was seventeen years of age I was going among the farmers doing their threshing with a large threshing machine and cleaner. Our power was eight large mules. One morning, about ten o'clock, I went around oiling the bearings and looking after the elevator, when I thought I smelled something burning. So I tried all the principal bearings by putting my

hand on them, but could not find any of them hot.

Just as I finished trying the machine I thought he detected fire. I put up my left hand on the box under which the shaft which is coupled to the power. At that point there was a slot in it for a key to keep it in place. The key should have been leather and should have been covered with a housing, but instead of leather, the man who had set it up put in three horseshoe nails, and there was no housing.

Before I could take my hand away the horseshoe nails got in their work on my shirt sleeve. I tried to pull loose, but could not. I had on two shirts and a pair of trousers, and overalls over them. So when I tried to pull away it was no use. I then thought, "I'm not going over that shaft if I can help it." So just as the turning took me up I put my shoulder against the beam of the machine, but the clothes kept ripping off me, and as my heels came up under me I dropped off the shaft. All my clothes were off me except the right wrist band of one of the shirt sleeves, a handkerchief around my neck, and my boots. But I did not wear any smile.

Mounting of Engine

HOW'LL you have your engine—on a truck, a permanent base, or on skids? Most manufacturers give the customer his choice in this matter.

An expert who has been selling gas engines for a good many years says that for farm use skids are best for small engines and a truck for sizes from eight horsepower upwards. Of course there are plenty of exceptions to meet special cases, but, generally speaking, skids have more merit than they usually receive. They look rather clumsy, but these are the advantages:

You can easily move a small engine mounted on skids because it is light. Skids take up less room than a truck if you want to use the engine indoors, and besides you can bolt the skids down if you care to, giving a strong base for the time being.

Larger engines used for cutting ensilage, sawing wood, or grinding feed are best mounted on trucks so you can move them around easily.

Stump Wood as Fuel

By T. S. Baskerville

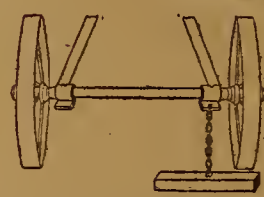
GOOD firewood is becoming scarce and very expensive, compared with what it cost a few years ago. Hundreds of thousands of dollars' worth of most excellent firewood have been destroyed by burning, with no other object than to get rid of the stumps at the time of pulling or blasting them out of fields being cleared for farming purposes.

The importance of saving this valuable wood was forcibly brought to my attention a short time ago by Mr. W. W. Jackson of Cumberland County, Virginia. In fact, he presented the idea to me in a way a little different than I had ever thought of it before. His farm had been cleared of stumps several years previously, dynamite being used to get them out and break them up. Instead of immediately piling and burning them as most landowners do, he had them hauled to his woodpile, and they have furnished the fuel for his open grates and sheet-iron heaters ever since.

He made the impressive remark that the blasting of these stumps had cost him practically nothing; that originally he had used about 20 cents' worth of dynamite on each stump, but that by using the wood as firewood he had saved what it was costing his neighbors for fuel, and that this amounted to nearly as much as it had cost him to blast the stumps and break them up. Not only that, but the gnarled stump wood makes the best kind of fuel for open grates and the big sheet-iron heaters used here in Virginia.


Stop for Any Wagon

By Wm. Maxon



WHEN pulling a heavy load up a steep hill it is often necessary to rest the team. Here is a simple device that will hold the wagon while the team rests. Take a stout piece of wood four inches square and about twenty inches long. Fasten a chain at the center. Put other end of chain around the rear axle so the block will drag about two inches behind the wheel.

When you wish to stop, let the wagon back a couple of inches and the stop is always ready to block the wheel. This device is extensively used by lumbermen in Oregon.

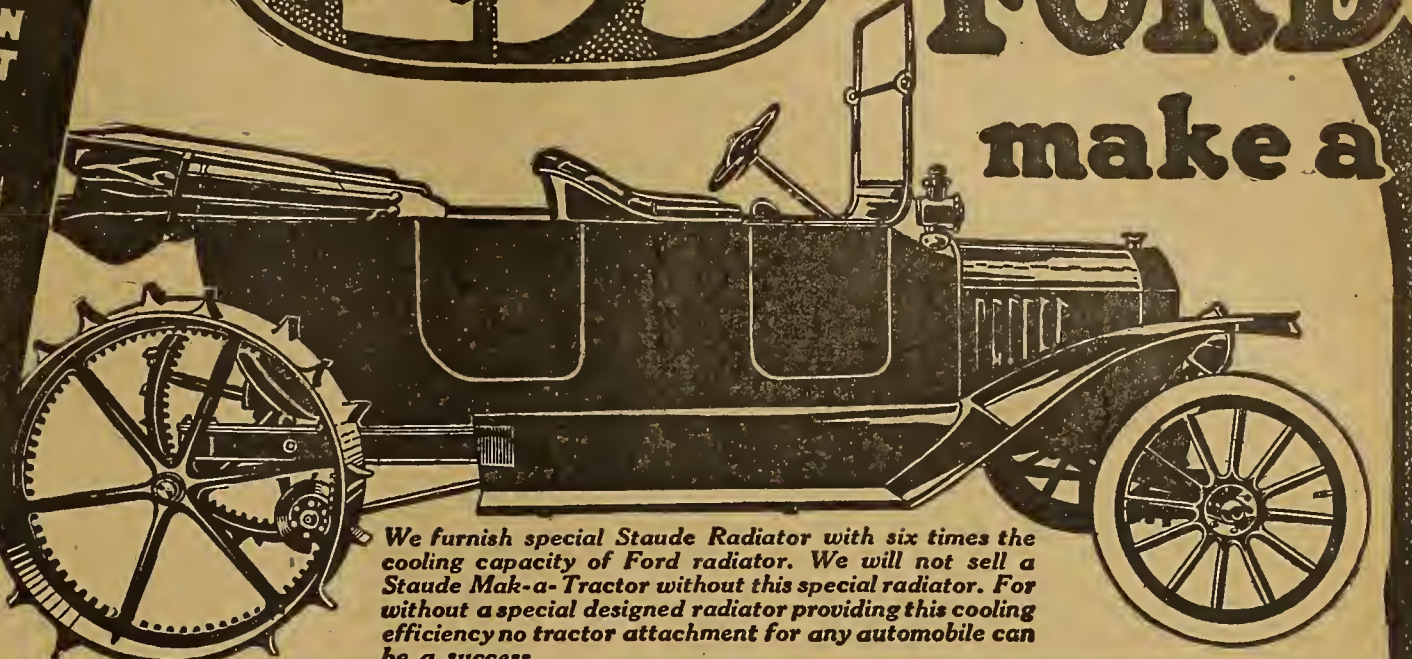


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Staude Mak-a-Tractor

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We furnish special Staude Radiator with six times the cooling capacity of Ford radiator. We will not sell a Staude Mak-a-Tractor without this special radiator. For without a special designed radiator providing this cooling efficiency no tractor attachment for any automobile can be a success.

FREE

Send to day



Guaranteed Powerful Staude Mak-a-Tractor

Double the Amount of Work You Can Do, and Save Money at the Same Time

Staude Mak-a-Tractor, combining with any Ford touring car or runabout to make a guaranteed tractor, will give you double the working ability of four good horses at practically one horse cost. It has easily plowed five and six acres a day; horses plow 3½ to 4. It has easily hauled the largest Minneapolis thresher made. It has moved a 25-ton story and a half house on dirt roads.

It has been proved out on every kind of farm work. It has plowed in every kind of sod, deeper furrows, more acreage than is possible with any four-horse team, pulling a gang plow. All this work is real work actually done. Staude Mak-a-Tractor is a time tried product for you.

We guarantee Staude Mak-a-Tractor, used with any Ford in good condition, to start and run continuously on high gear and do work of 4 horses.

Wonderful Efficiency— Remarkable Economy

Staude Mak-a-Tractor simply converts the speed of the Ford car into draw bar pull at low speed. All strain is on tractor attachment and not on the car.

This is proof of real efficiency. We take the Ford power at 1,000 r. p. m., only one-half the maximum engine speed. A gear reduction of 11 to 1 in tractor wheels and driving pinions gives wonderful pulling power.

Plowing steadily, at two and a half miles an hour, the Ford motor will use from one and a half to two gallons of gasoline per acre—never more. And your Ford used with Staude Mak-a-Tractor is not injured or defaced. You get the wonderful power of your Ford motor adapted to practical work.

Reasons Why Staude Mak-a-Tractor is the Most Efficient Most Economical Form of Farm Power

Note these features carefully. Each is important. Each is necessary to real service. And each is an exclusive Staude Mak-a-Tractor feature:

- 1—The Staude Mak-a-Tractor combines with either a Ford runabout or touring car without detaching the body.
- 2—The Staude Mak-a-Tractor can be attached by anyone in twenty minutes. Changed back to touring car or runabout in same time.
- 3—We bore no holes in Ford frame.
- 4—We do not take off Ford running board.

5—We do not take out the Ford rear springs or interfere with spring action in any way.

6—We furnish a special Staude cellular type radiator with six times the cooling efficiency of the Ford Radiator. We will not sell a Staude Mak-a-Tractor without this radiator because when running at slow speeds when used as a Tractor the inflow of air is necessarily reduced. A special radiator must be furnished with an increased cooling capacity. Without it no tractor attachment for any automobile can be a success.

7—We furnish a special force feed, oiling system, pumping oil direct to the motor bearings, with sight feed on dash.

8—Staude Mak-a-Tractor bull gear has specially designed self-cleaning teeth.

9—Staude Mak-a-Tractor driving pinions force tractor wheels down—not up—thereby developing more power and better traction.

10—All hitches are made to Staude Mak-a-Tractor 2-inch cold rolled steel axle, which is behind Ford rear axle. No hitches are made to Ford axle housing, differential housing or any other part of Ford car.

11—Ford rear axle merely becomes a jackshaft. All weight of Ford car is relieved from the Ford axle and carried by the Staude Mak-a-Tractor axle.

12—Since all moving power is obtained by contact of Mak-a-Tractor wheels with the ground, the Ford car is actually pushed ahead by the Staude Mak-a-Tractor. There is nothing for the Ford car to pull.

13—Staude Mak-a-Tractor has two pinions—one for farm work, giving speed of 2½ miles per hour—one for road hauling, giving speed to 5 miles per hour.

14—Staude Mak-a-Tractor has a fifth wheel for heavy hauling. Will haul up to five tons, giving 2½ to 5 miles per hour. Furnishes farmer cheapest hauling cost in the world.

15—We also call attention to neatness of design and method of attaching Staude Mak-a-Tractor to the Ford.

Breaking clods, pulling over freshly plowed ground. For work in freshly plowed fields Staude Mak-a-Tractor is unusually efficient.

Two-section disc, eight disc to a section, over newly plowed ground.

E. G. Staude Mfg. Co.,
2664 West University Ave., St. Paul, Minn.

Please send me FREE your big illustrated book, "Reaping a Golden Harvest," which shows how farmers are making piles of money with Staude Mak-a-Tractor. I would also like to see the Staude Mak-a-Tractor demonstrated on my farm. This does not obligate me in any way.

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City.....State.....R.F.D.....
My Automobile Dealer's Name is.....
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E. G. STAUDE MFG. CO.
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THESE TWO FREE BOOKS MEAN BIGGER CROP PROFITS FOR YOU!

My Famous Book "A Streak of Gold" and Galloway's 1917 Catalog

SAVE \$25 TO \$50 ON A MANURE SPREADER

My book "A Streak of Gold" tells how to get the most out of the manure crop with the least labor. My 1917 catalog tells how a run-out unproductive farm was turned into a gold mine crop producer. How to increase your corn crop from 15 to 25 bushels per acre. How a Galloway spreader will pay for itself in one year by increasing crop profits and leave money to put in the bank besides! How and why I save you \$25 to \$50 on a spreader by selling direct.

TURN THE MANURE CROP INTO CASH AT HARVEST!

Prices never better! The producer is having his inning! Now is the time to get that big manure pile out on the land because every load means CASH IN THE BANK next fall for farm improvements, pleasures or other things you want. Get your manure crop out on the corn land—top dress the winter wheat! Get it on the soil where you are going to sow oats! Top dress the meadows—the alfalfa—the clover! A Galloway spreader used steadily for one or two weeks means that it will pay for itself because it represents money AT HARVEST time you otherwise would not get. Quit spreading by hand or using out of date spreaders when you can buy the best spreader on earth—the Galloway 1917 model Low Down No. 8, No. 6, or No. 1A and SAVE FROM \$25 TO \$50 over prices usually paid for spreaders not as good—not as down to date in design—not as light in draft—made of as fine materials, not covered by the eleven Galloway spreader patents found exclusively on the Galloway.

GALLOWAY'S NO. 8 LOW DOWN SPREADER

Is the crowning achievement of my spreader manufacturing career! Now built stronger than ever. The new Galloway wide-spreading V-shaped rake on every machine. Do NOT CONFUSE Galloway spreaders with low priced machines that do not have the special EXCLUSIVE PATENTED FEATURES and genuine merit (backed up by tens of thousands of Galloway spreader users). Beware of cheap, absolutely worthless imitations of the genuine Galloway at any price. DON'T BUY A SPREADER OF ANY MAKE OR KIND until you have tried a genuine Galloway 1917 model No. 8, No. 6 or No. 1A at our risk without obligating yourself in any way!

30 DAYS' FIELD TRIAL BACKED BY A \$25,000 BOND

Test Galloway spreaders on your own farm in your own way and take your own time! They are returnable to us within one year if they do not come up to every claim we make for them! I will pay freight both ways. A Galloway spreader must sell itself to you. You are the judge. Spreaders shipped from Waterloo, St. Paul, Kansas City, Chicago or Council Bluffs—whichever is nearest your station, more convenient to you.

I have deposited in the Black Hawk National Bank of Waterloo a legally executed \$25,000 bond to guarantee that I will live up to every agreement and STAND BEHIND EVERY CLAIM I make for Galloway manure spreaders, cream separators, gasoline engines, etc. You have nothing to lose and everything to gain when you deal with Galloway. I manufacture these spreaders in my own great chain of factories right here in Waterloo. Come and see me any time. You are welcome and I will be glad to show you how Galloway divides the mason and ships direct from factory to farm.

Do it with a Galloway 1917 model No. 8 spreader. Spreading now means bigger crop profits this fall.

3-81



Crops and Soils

Improves Bottom Land

By P. C. Henry

AS LAND values increase it becomes more important to cut down the number of acres in "waste" lands that yield no profit to the farm but on which taxes are regularly paid. Good farm management requires that the owner of the farm study the problem of his waste land and seek to bring it into cultivation as soon as possible.

Here in Catawba County, North Carolina, there were, a few years ago, thousands of acres of rich bottom lands along all the creeks of the county standing idle, too wet to cultivate and growing only bullrushes and frogs. The solution of the problem was not a simple matter of tile drainage, for the channels of the creeks were filled with sand and debris.

Dredging operations were needed, so a number of progressive and wide-awake farmers along the principal creek of the county formed a drainage district and arranged for all the land to be benefited by the dredging of the stream to pay a small yearly tax till the cost of the dredge boat, machinery, and work of dredging should be paid. The dredging machinery was placed on a boat built at the head of the stream, and floated down-stream in a new channel that was cut, about 15 feet wide by 7 to 8 feet deep. This gives the stream sufficient space to carry off the water after our heaviest rains. And what is the result?

Those same rich bottom lands that a few years ago had been given over to bullrushes and frogs are now producing some of the best corn in the county. When the owners of the lands along the other creeks of the county saw what had happened along Clark's creek, they planned to do likewise. To-day about all the creeks of our county are dredged, and the lost land has been put to work as it should be.

Value Increased Greatly

Five years ago Mr. J. E. Herman, who is a typical example, wished to sell some of his bottom land that was growing only bullrushes and frogs at \$40 an acre, but no one wanted it even as a gift. After the first dredge boat was purchased and put to work on Clark's creek, a small amount of bottom land along the creek changed hands at \$75 an acre, while to-day you can scarcely find a single acre of the now fertile and well-drained bottom lands for sale at \$150 an acre.

Raising too much corn and cotton in our county had caused thousands of tons of top soil to be washed into all the creeks, choking them completely, with the result that every little rain caused the waters of the creek to spread all over the lower lands, making them too wet for any purpose. People refused to live anywhere near the creeks on account of the "sneakers" and malaria infesting that region. But now the way has been found to remedy the trouble.

One farmer, R. E. Smith, was greatly discouraged a few years ago because he

could no longer raise the fine corn he once did on his hundred acres of fine bottom lands. In disgust he turned a score of cattle onto it as a pasture, but every little shower made the lands too wet even for cattle. However, that creek meandering through his plantation was dredged and straightened, and last fall he had one of the best stands of corn seen anywhere, and during a drought of six weeks that corn did not suffer in the least.

Another example showing just how some of the landowners were at the mercy of the elements they could not control is seen in the case of P. R. Cline. He decided that if he could not grow the fine corn he once did along the creek he could at least make much good hay on that land. Accordingly he made plans in that direction. But it often happened that just before he was ready to cut the fine meadow grass a hard shower would cause that creek to spread all over those bottom acres and his hope for a crop of first-class hay went glimmering.

Now all the willows have been grubbed out, he has been getting fine stands of corn, and he is wearing the smile that won't come off.

Raising Bigger Crops

By Blake Smith

A MANURE spreader has helped me to maintain the fertility of my farm as well as to enjoy the fruits of increased production. Formerly I left the manure out where it lost, the greater part of its fertility through leaching. I did this because I did not want to dirty up a wagon for only a few loads of manure at a time, and because of the inconvenience and work of hand spreading I dreaded the job and put it off.

Since buying a manure spreader I haul out the manure and spread it on the fields and pastures as soon as I have one spreader load. Thus it has not a chance to leach. With a spreader I not only get twice as much fertility out of the manure in increased crops and soil fertility, but the work of spreading the manure has been shifted from me to the horses.

Applying Lime

By E. J. Johnston

The Pennsylvania Station has lately been carrying on experiments with different forms of lime, and all of the field tests are more favorable to the finely crushed limestone than to equivalent amounts of burnt lime. But the results are not sufficiently decisive to justify the use of the ground limestone if it is much more expensive. When ground limestone is used it should be finely pulverized, as lumps will remain inactive in the soil for a long time. The conclusion arrived at by this station is that on silty loams, on other soils of heavy texture, and on lands where soil acidity is the chief factor limiting clover production, crushed limestone should be at least 60 mesh in fineness of pulverization. Large mesh doesn't give as good results.

It is well to remember that 56 pounds of burnt lime, 74 pounds of hydrated (water-slaked) lime, and 100 pounds of pulverized limestone represent equal values when applied to the soil. The hydrated and pulverized forms are of course the most convenient, but each farmer can decide for himself which he will apply, according to which is more readily available and the least expensive. It is well to apply it with a lime spreader whenever possible, as it is difficult to spread it evenly otherwise.

The tendency of the past generation was to apply considerably more than was needed. This was a waste of money, besides being really a detriment.



Here is a picture of the dredge that several North Carolina farmers bought to drain their bottom land

WORTH \$50 MORE THAN ANY OTHER SPREADER

Remember this spreader is low down—only 42 in. high to center of box. Easy to load. Lightest draft spreader of its capacity built. Two horses handle Galloway spreaders anywhere. The Galloway wide-spreading V-rake, worth \$15 extra on any spreader—costs you nothing extra on the Galloway. The invincible, irresistible, patented roller feed—an exclusive Galloway feature—the secret of its light draft, alone worth \$25 extra on any spreader—exclusive again on the Galloway—costs you nothing extra. Patented Automatic stop, Uniform Clean Out Push-Board—worth \$10 extra on any spreader—exclusive on the Galloway—costs you nothing extra. These are only a few of the special features you will find on the Galloway which are protected by Galloway patents. Don't buy a spreader of any make or kind until you have tried a genuine Galloway 1917 model No. 8, No. 6 or No. 1A at our risk without obligating yourself in any way. Try it in your field for thirty days and return to me within one year if not perfectly satisfactory. Remember we manufacture in our own factories and sell direct from factory to farm.

INDISPUTABLE PROOF. I saved \$29 by ordering a Galloway. I know it is a better spreader than I could have bought here for \$125.—Geo. A. Kralik, Okla. City, Okla. I consider it equal to a prominent machine sold for \$140. One neighbor who has used both says he would rather have the Galloway.—W. O. Cracraft Eckley, Colorado. There are six Galloway spreaders in my neighborhood. They tried my spreader first. All are more than pleased. Have had no repairs in seven years.—Edw. Semmelroth, Tekonsha, Mich. I saved \$39. Believe I got a better spreader than was offered me here for \$135.—A. T. Miller, Orella, Nebraska.

Wm. Galloway, Pres., Wm. Galloway Co. 399 Galloway Station Waterloo, Iowa

Only 42 Inches High at Center of Box

Four Wheels Under the Load

Steel Tongue

We are Manure Spreader Mfg. Specialists

You are sure of a square deal if you mention Farm and Fireside in answering advertisements.

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Model "A" 8-16 H.P. \$585.00

THE EFFICIENT FARMER'S CHOICE

Low in first cost—low in upkeep. Built on simple, practical lines, with only 3/4 the parts used in other tractors. Now "making good" on the farms of owners everywhere. Model "A", 8-16 H. P. Light Weight Tractor, pulls 2 or 3 plows according to soil conditions.

WRITE FOR CATALOG Model "B" our wonderful kerosene burner. Guaranteed drawbar pull 2000 pounds, or 3 14-inch plows. Hyatt Roller Bearings throughout. Handles any belt work. Weight only 3700 lbs. We have a distributor near you for prompt service.

LA CROSSE TRACTOR CO. Dept. 33, Minneapolis, Minn.

Model "B" 12-24 H.P. \$735.00

LIVE DEALER AGENTS WANTED

A Valuable Bird

By A. A. Jeffrey

AN EXTREMELY helpful friend of ours, when bird friends are few, is the rough-legged hawk. Unfortunately this bird is little known or valued. It reaches the United States from its northern breeding range in September and October, remaining until April.

It may be identified afield by its broad wings, its large size, and the broad dark band which crosses its breast and under side of its wings. It is comparatively tame. The name rough-legged or hare-footed is made appropriate by the bird's full-feathered legs and feet.

The coloration of the American rough-leg and its more western sub-species, the ferruginous roughleg, varies from the type here described to almost solid



The American rough-legged hawk

black. In this darker phase the rough-leg is commonly called the black hawk.

On such good authority as that of Dr. A. K. Fisher, under whose direction the U. S. Biological Survey made extensive field observations of this bird's feeding habits, it is stated: "The roughleg is one of man's most important allies against meadow mice, feeding on little else during its six months' sojourn in the United States. Other mice, rabbits, and ground squirrels are taken occasionally."

What is Good Corn?

By Leo Matthews

IN THE very early spring when we go over our seed corn for the second time and arrange the ears for the germination test, many of us are not positive just what are the points that go to make up a good ear. If we wish to exhibit some of our corn, or even wish to raise corn that would be considered good by those in authority, there are twelve or more points we must consider when we select our seed. First, the length and circumference must conform to the standard for the variety considered. For the central and southern sections of the corn belt the following are the present fixed minimum dimensions for the specified varieties:

	Length	Cir.
Reid's Yellow Dent.....	9.5 in.	7 in.
Leaming	9.5	7
Boone or Johnson Co. White	9.5	7
Riley's Favorite	9	6.75
Golden Eagle.....	9	7.25
Silver Mine.....	9	7
Champion White Pearl.....	8	6.75

The ears should be free from mixture and true to the variety color. They should be cylindrical in shape and have straight rows.

Tips should be oval in shape and regularly filled out with large dented kernels. At present there is a belief among seed-corn growers that a continual selection of ears that are completely filled out at the tips tend to shorten the ears, so for this reason they do not object to a portion of the cob showing at the tip.

At the butts of the ears the kernels should be rounded over the end of the cob, leaving a deep depression when the shank is removed.

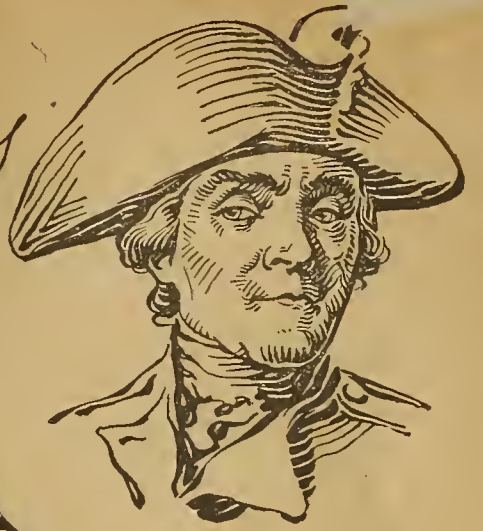
The kernels should be uniform in size and shape. In shape the kernels should be deep, wedge-shaped, and full at the germ end. The Champion White Pearl is an exception.

The furrow between the rows and space caused by the round corners of the grain must be narrow, deep, and sufficient for perfect ventilation. The seed must be ripe, sound, dry, and of strong vitality.

One of the most effective ways to increase corn yield is the seed selection, and if the above points are kept well in mind when selecting seed the results will unquestionably be an increased yield and a better quality of corn.

"I Am Ready."

Paul Jones



LIKE the patriot, Paul Jones, Firestone Tires are prepared for any emergency, ready.

Ready for hot or cold climates, deep snow or frozen ruts, oily street or icy road; ready with tough, resilient service.

Quantity and quality of materials are built in the exclusive Firestone Way, under the authority of the head of the business, Mr. Firestone, whose name is on every tire.

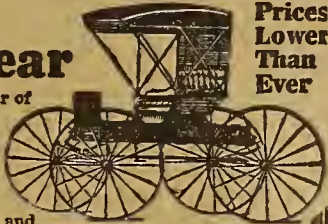
Firestone "readiness" explains why you get Firestone at the cost of ordinary tires. The Firestone Organization is so efficiently equipped and the output is so vast that production cost is lowered and price brought down to you. This means too, the final economy in Most Miles per Dollar. Your dealer is "ready."

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Write for Big Buggy Bargain Book. It puts the buggy opportunity of the year before you clear as day. You know ELKHART Buggies and Harness—the name has stood for quality for 44 years.

75 Buggy Styles - 50 Harness Styles. We sell direct, save you money and give you 60 DAYS' FREE TRIAL. The Big Book is free. Write for it today.

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The Kewanee is the original air pressure system. It will deliver an abundant supply of water under strong pressure anywhere on your farm, as perfectly and steadily as the most complete city system. So simple a woman can operate it. Write for complete information and booklets describing these Kewanee specialties: Water Supply Systems, Electric Lighting Plants, Sewage Disposal Plants, Gasoline Storage Plants.

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Kirstin Stump Puller

This powerful all steel One Man Stump Puller yanks out any stump easily and quickly—no horses necessary. Clears an acre from one anchor. Patented cable take up does away with winding up slack cable. Three speeds—when stump loosens increase the speed and save time. Tremendous power gained by leverage principle. Works in any position. Easily moved on its big broad wheels. Can be reversed under strain.

Sold on 15 year guarantee, flaw or no flaw. Used by the KIRSTIN METHOD we guarantee a saving of 10% to 50% over any other way of clearing land for the plow. Ten-day trial on your stump land. You can make

Big Money for Yourself

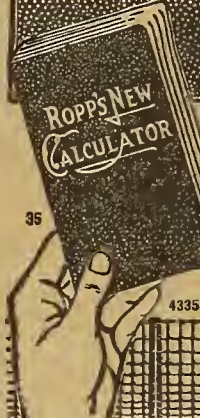
under our Profit Sharing Plan. Write today for that plan and our big, Free, illustrated book, "The Gold in Your Stump Land."

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Largest makers in the world of Stump Pullers—both one man and horse power.

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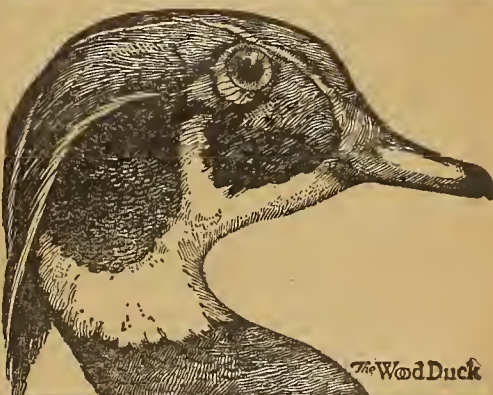
Here is a book every landowner needs—Ropp's New Calculator. It gives the answer to any problem almost as quickly as you can tell time by a watch. Given to help advertise

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The fence that stays tight and trim the year 'round. Outlasts any wire fence made. Fence Book tells why SQUARE DEAL Fence is better. Write us. Books free, postpaid.

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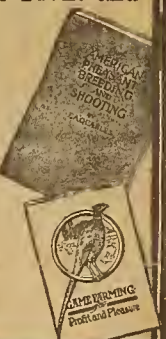
Write for these two books which tell all about this interesting and profitable work. "Game Farming for Profit and Pleasure" is sent free on request. It treats of the subject as a whole; describes the many game birds, tells of their food and habits, etc. "American Pheasant Breeding and Shooting" is sent on receipt of 10c in stamps. It is a complete manual on the subject.



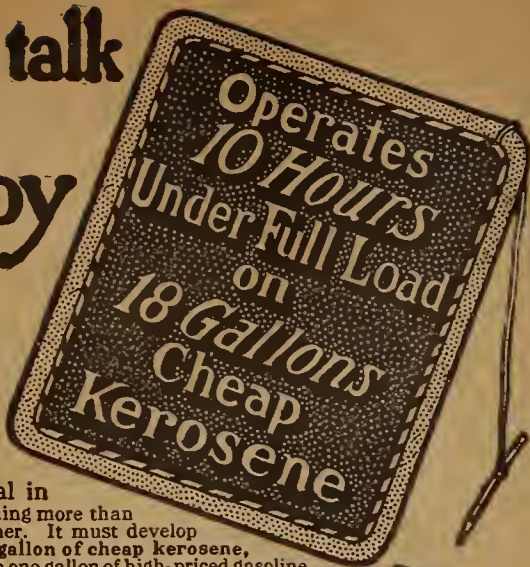
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Figures that talk for the Waterloo Boy Kerosene Tractor



To make a tractor economical in operation requires something more than just being a kerosene burner. It must develop the same power from one gallon of cheap kerosene, that is ordinarily developed from one gallon of high-priced gasoline. Our Patent Kerosene Burning Device is different from any other on the market. Transforms 8-cent kerosene into an explosive gas more powerful than 18c or 20c gasoline—no smoke, no soot, no waste.

What Waterloo Boy Fuel Economy Means to You in One Day's Work

18 gallons gasoline at 18c	\$3.24
18 gallons kerosene at 8c	1.44
Waterloo Boy daily saving in fuel	\$1.80
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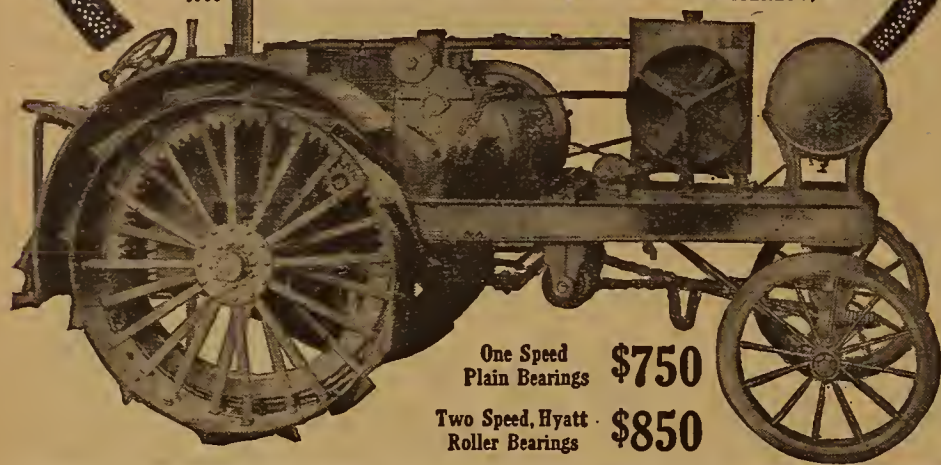
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Ways to Use Wall Board Its Merits as Compared with Lath and Plaster

By D. S. BURCH

WALL BOARD is a product usually made of fiber or combinations of wood, fiber, and plaster. It comes in large sheets, varies in thickness from about three sixteenths to three eighths of an inch, and is intended to be used as a covering for inside walls.

I had heard conflicting reports of its merits as a building material, and had seen some rough jobs that were a poor recommendation for it. Next I ran across this admission made by a manufacturer of wall board: "We do not recommend wall board of any kind, no matter what the claims may be, for interior finishing of the most expensive residence. It has a field of its own, however, where its use is entirely suitable and of genuine advantage."

Accordingly, when visiting in an attractively finished house, I was surprised to hear the owner remark that he had used wall board instead of lath and plaster. "This is a six-room house," he went on, "and as we have a small baby, the furnace fire was kept up till the first of June. But we used only 5½ tons of coal all last winter."

This house is located in southwestern Ohio. It is thoroughly well built, nicely finished, attractively papered downstairs, and there isn't a lath in it. Nor where the walls were papered was it possible to distinguish them from a lath and plastered wall, except in one room.

"It's all in the way you put it on," he explained. "You can have a poor job of wall board just as you can have a poor job of plastering. No one thinks much about poor plastering because it's common, but just because wall board is a new idea a report of a poor job carries a long way. The wall board I used was not any flimsy thing as you can see." He pounded on the wall with his fist, and except for a little more resonance than plaster gives it seemed fully as solid. The wall board for this six-room house weighed two tons. It's a combination of plaster and fiber and is three-ply. The plaster is in the center and the fiber layers are on the outside. He then showed me the one room previously mentioned as the exception where you could tell the walls were finished with wall board.

"Just to prove what I said about putting it on right," he said, "look at this ceiling." I could see that it wasn't quite a smooth flat surface, but many plastered ceilings are fully as uneven. "I had to fire the man that laid this wall board," the owner continued, "because he wasn't careful. I put the rest of it on myself, with the help of one man, and we got along fine. The trouble with that ceiling is no fault of the wall board itself, but the workman didn't use the plastic filler properly. He put on too much and didn't take the pains to smooth it down. You can see in these other rooms that there's no sign of any joint."

Product Proves Satisfactory

Then we went up-stairs where the walls were wall-boarded but not decorated. They were perfectly smooth. The wall-boarded surface was gray in color and the joints were white, as that is the color of the plaster filler.

"Here are a few hints about laying this kind of wall board," he explained. "You must break joints just as in brick work or in lathing, as it makes a stronger wall. This wall board comes in 32 and 48 inch widths, which just fits studding placed 16 inches apart on centers. A space of about a quarter of an inch is left between sheets and the sticky plastic is used to fill this space so as to make a smooth continuous surface. The wall board will take a putty coat of plaster, and if one cared to he could give the wall such a coat. That would give it the appearance of a finished plastered wall, which is the way it should be finished if you want to paint the wall or kalsomine it. This wall board also has a grain. It will bend one way more easily than the other. In that respect it is like a wooden board. The grain should always be crosswise of the studding to give the strongest job."

"How big a job is the laying of it compared with lath and plaster?" I asked.

"A room about 12x15 feet," he replied, "takes one man about half a day, but the exact time depends on the amount of fitting that has to be done around windows and door frames, also on the shape of the room. One man can do the walls without help, but for ceilings two men work to better advantage."

One man holds the sheets while the other nails them on. The man I had to help me was a plasterer, and I should advise anyone hiring the work done to have a plasterer instead of a carpenter. A plasterer will smooth the joints better, for he is naturally particular about the finish of such work."

Another method of laying wall board is to panel the joints with wood strips. This may be done in attractive mission style, and if large sheets are used the sectional effect is very attractive. Wall board comes in sheets as large as four feet wide by twelve long, and the cost ranges from about three cents a square foot upward.

Another case where wall board was successfully used by another house owner was for finishing an alcove which he had built on his dining-room after the house was completed. This man and his wife concluded that rather than have a plasterer come for such a little job as plastering the alcove they would use wall board and save the muss and the expense. So most of the room is finished with lath and plaster and the alcove with wall board. You can't tell the difference except by tapping on the two walls.

Gives Relative Merits

As to the relative merits of lath and plaster compared with wall board, I should say this: If you are building an expensive home and can secure the services of a good plasterer whose work you can rely on, use lath and plaster. Especially if you desire a sand finish on the inside walls or if you want to paint or kalsomine the walls, lath and plaster will give the greatest satisfaction in most cases. There is nothing about it to swell and shrink, and it still remains the standard material for inside walls.

But if you are not sure of a first-class job of plastering, or if you are building late in the fall and are afraid that the plaster will freeze, or if you wish to avoid the delay of waiting for the plaster to dry out, then the use of wall board is worth considering. For small jobs, such as putting partitions in attics and basements, for lining hen houses, and for finishing such buildings as summer cottages or garages, wall board will be more convenient and equally satisfactory.

Some kinds of wall board are made to resemble different kinds of finished wood, like quartered oak and even Circassian walnut. These are intended chiefly for jobs of paneling.

While statements have been made to the effect that anyone can apply wall board, remember that amateur work of any kind will usually look like amateur work. But if you are a good carpenter or are naturally handy with tools, even the first job of wall-boarding is not likely to present any serious difficulty.

EDITOR'S NOTE: Questions relating to any kind of building will be answered by the Building Editor, FARM AND FIRESIDE, Springfield, Ohio. Please state your problem fully; reply will be made by personal letter.

To Cultivate a Virtue

By Elizabeth W. F. Jackson

EVEN the brief time of minutes spent daily in the earnest effort to overcome a fault or to cultivate a virtue will work wonders.

Why not try? If you are perfectly satisfied with yourself, of course you will not be interested in the following article; but if you should happen to be one of the great majority who realize that their characters are still far from perfect you will be glad to learn how to improve.

When we take into consideration the fact that our characters are about all we can take with us when we depart from this life, character-building becomes a vital subject.

Just because you were born with a spiteful temper is no reason why you should be handicapped by it all your days. Just because you always have had a jealous disposition is no reason why you should continue to make yourself and all your dear ones miserable.

These and other common faults you can correct, and if you will do your part and spend the five minutes a day, the time will be well spent.

We spend a much longer time each day in considering the subject of food and clothing, and most of us devote some time to education and recreation.

Can't we spare a little time in which to build up a sterling character?

Farming Without Hands

By Bessie H. McElroy

A FARMER twenty-seven years old, living in Hill County, Montana, owns 320 acres of improved land, live stock, and other property. He is worth \$5,500, and he has made it all since April, 1910.

This young Norwegian was frozen so badly in a Minnesota blizzard in January, 1906, that he had to have both hands and all of his toes amputated. He wears leather cuffs buckled tightly around his wrists. The cuffs have steel hooks attached to them. His feet are crippled, so he has to ride in all his farm operations. Much of his success is due to the advice and financial assistance received from his father and mother. But he pays back the money he borrows.

Alfred Holm went to Montana with his parents and a brother. His father and brother filed on government homesteads, 320 acres each. Two years later he filed on a homestead near the claims of his father and his brother. The claim had been relinquished to the Government by a railroad man because he thought he could not make a living on it. This did not discourage young Holm from filing on the homestead.

The first summer he had a frame building 14 feet long and 12 feet wide constructed and hauled to his homestead. This was his home. He also broke out 20 acres of sod on his claim, and 40 acres of sod on the claims of his father and his brother. He used four oxen and a sod sulky breaking plow.

As the oxen were not fed any grain, Holm would plow from 5 A. M. until 10 A. M. Then the oxen were unharnessed and allowed to graze until 2 P. M. The same kind of harness was used on the oxen as is used on horses. The collars were placed on the oxen's necks upside down. The afternoon plowing continued from 2 P. M. until 7 P. M. The oxen were unharnessed and turned loose to graze on the prairie during the night. The oxen were sold the first fall, and the next spring he bought five range horses.

Young Holm harnesses his horses and hitches them to the different farm implements without help. He does his own cooking, shaves himself, writes his own letters, and can saddle a horse.

Last season he disked 115 acres of ground, seeded 95 acres of wheat, 74 acres of oats, 40 acres of flax, and 10 acres of barley. All of this he has double-harrowed. He does all of the team work on the three homesteads—his father's, his brother's, and his own.

Holm plans to have 200 acres under cultivation—100 acres in fallow, storing moisture for the next season's crop, and 100 acres in crop every year. His future operations will include alfalfa, hogs, and wheat.

Molasses for Horses

By B. F. Hester

WHILE it is a mistake to make any very sudden change in the ration of the work horse, it can be done gradually without danger. Many get into the habit or routine of giving horses the same ration fed by their fathers. But a little figuring will show that the old ration is not economical at present feed prices.

Whole oats cannot be excelled, perhaps, as an all-round horse feed, but we find that it is being wastefully used in the idle season, as is also hay. When horses are working hard, the oat ration, together with a small quantity of wheat bran at each feed, gives excellent results, but when horses are idle or doing light work, it is possible to reduce the expensive feed and still maintain the animals in good condition.

Oat straw may well take the place of expensive hay if some bright corn fodder can be added. Old, weathered corn fodder or corn fodder that is moldy is absolutely unfit for horse feed and is often deadly. Blackstrap, New Orleans, or cane-sugar molasses should be considered as a horse feed whenever it can be bought at a reasonable figure. It is very readily digested, does not cause colic or scours, and quickly plumps a harness-galled work horse. A quart of molasses mixed with three quarts of hot water and then stirred thoroughly with corn meal, wheat bran, and cut hay or cut oat straw, fed night and morning, will work wonders for a thin horse. It may be found necessary to starve the horse at first to make him take the molasses feed, but he will soon eat it with relish and show improvement. When such a ration is fed night and morning to hard working horses, it is usual to feed whole oats at noon and long hay at night. Sound corn silage may also be safely fed in small quantities in winter. Corn and alfalfa hay make a balanced ration, but are expensive at present, as are most of the usual grain feeds. Molasses and straw cheapen a ration and give good results.



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that the cause of various annoying ills might lie in the daily cup of tea or coffee?

A sure and easy way out of coffee and tea troubles is to shift to

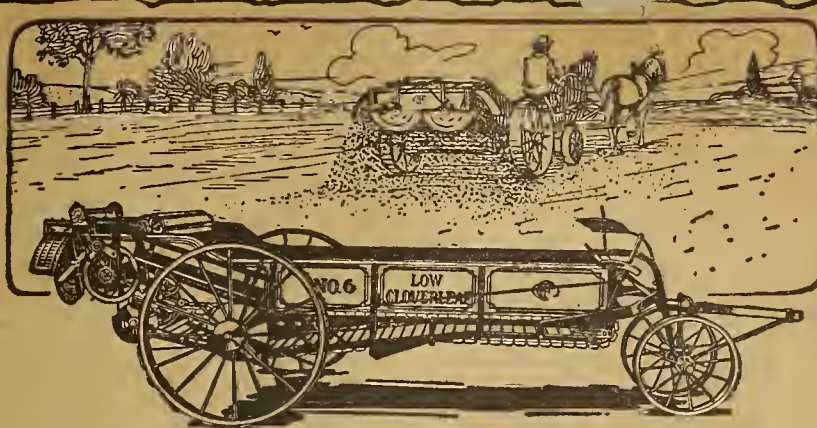
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Just fill out the coupon below—mail it to me today and I will send you this **FREE SAMPLE BOX** of Corona Wool Fat post-paid. When it comes, try it out on any case of Barbed Wire Cuts, Sore Shoulders, Sore Teats on Cows, Boils, Ulcers, Old Sores—in fact flesh wounds of any kind. Then you can see for yourself the remarkable results this preparation gives. This is an absolutely free offer—open to any reader of this paper. I don't ask you to send me a cent of money for this sample; I even pay the postage. All you have to do to get it to try on your horses and cows is to fill out the coupon below and mail it today.

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The Corona Wool Fat works just as you recommend and even better. My horse was sore in the front feet and could hardly get out of the barn. In two weeks she improved so much she was as limber as ever, and our blacksmith stated that he never saw anything as good as Corona Wool Fat.
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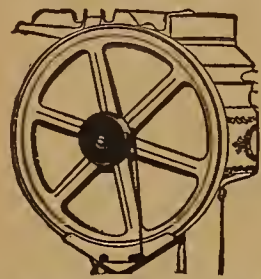
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YOU can see the difference between a NEW DE LAVAL and any other cream separator right away.

And five minutes spent in comparing the bowl construction, the size, material and finish of all the working parts, the manner of oiling, the tinware and the frames, will surely convince you of the superiority of De Laval construction and workmanship.

Then if you go a step farther and turn the cranks of the two machines side by side for fifteen minutes, running milk or water through the bowl, you will see still more difference.



Every New De Laval is now equipped with a Bell Speed-Indicator, the "Warning Signal" which insures proper speed and uniform cream.

Speed Indicators can be furnished for use on old style De Laval machines at a cost of \$3.00 each.

And if you will run the two machines side by side in practical use, as any De Laval agent will be glad to have you do—the De Laval one day and the other machine the next—for a couple of weeks, you will see still greater difference in the work of the two machines.

There is a De Laval agent near you who will be glad to explain all the improvements and advantages of the NEW De Laval, and who will set and start a machine for you on your farm and let you *prove the difference* for yourself.

Why not see the nearest De Laval agent at once? If you do not know him, write to the nearest office for any desired information.

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50,000 BRANCHES AND LOCAL
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Dairying

If Milk Exportations Stop

By D. B. White

HOW will the present unrestricted submarine warfare affect American dairying is a question which has lately been asked in all earnestness. If exportations of condensed milk and cheese suddenly cease, a large surplus of the former will be left unsold, and if the condenseries begin to make butter or cheese, that would undoubtedly force the price of these commodities to a lower level.

Since the European war began, exports of dairy products have been as follows according to the Department of Commerce:

Butter: 1914, 3,239,100 lb; 1915, 16,775,750 lb; 1916, 24,262,754 lb.

Cheese: 1914, 2,119,217 lb; 1915, 57,108,091 lb; 1916, 50,056,516 lb.

Condensed milk: 1914, 17,558,862 lb; 1915, 55,292,667 lb; 1916, 202,890,483 lb.

The figures for 1916 are for only the first eleven months. You will readily see that if exportations of these products cease entirely it will affect the markets of the United States seriously.

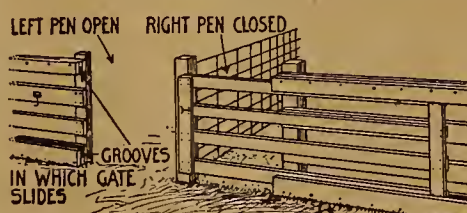
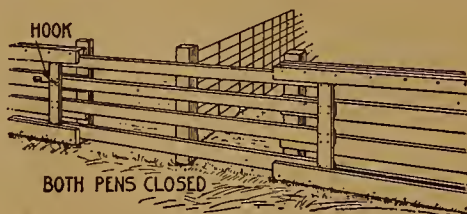
Sliding Calf Gate

By R. E. Rogers

USUALLY every calf pen has a separate gate. But here is a practical plan for making one gate do for two pens and, being a sliding one, it takes up little room and is easily managed.

The gate is set in a groove at the bottom and is held by an inverted groove at the top. The middle of the gate is at the post that divides the pens. Slide the gate either way and let out the calves in either place. Both cannot be opened at once.

It makes an easy slip-gap gate for one man to handle. There are no hinges to be torn off and no latches to bother with except blocks to keep the



gate from sliding out too far either way. A hook holds it in a certain place when closed, though I have never known stock to open this kind of gate.

One Can of Cream \$16.39

By Edward L. Sachtler

WHAT is thought to be the largest check ever paid for a single can of cream in southwest Washington was lately received by James N. Hibbard, a dairyman and rancher, from a creamery in Clarke County. He shipped the concern a 10-gallon can of cream last month and received \$16.39 for it.

The can contained 37½ pounds of butterfat which netted the dairyman 44 cents a pound. The cream had the unusually high test of 46 per cent.

The creamery manager states that the check was the largest ever issued by them for a single can of cream in all their experience. Mr. Hibbard has only a small herd of choice dairy cattle of the Jersey and Guernsey breed, and he exercises particular pains in caring for his herd of "breadwinners" and "mortgage lifters," as he calls them.

Oil for the Separator

By J. L. Justice

SOME dairymen complain about their cream separator running hard after several years' use and conclude that the gears are wearing out. The gears of the separator used on the average farm

should last fifteen or twenty years. But a hard-running separator is a drudge and a poor recommendation of itself. I remember a woman who had been impressed by the idea of owning a separator, and who asked a neighbor to let her turn the crank of his machine for five minutes. She was out of breath when she quit, and condemned the separator as a woman killer then and there.

We had the same trouble with our separator after using it several years, but found the fault was with the oil used.

Cleaning the gears with kerosene would make it run easy for a few days, then it would begin to run hard again. It took some little time to keep the gears cleaned, so we hit upon a combination that obviated it altogether. We mixed equal proportions of kerosene and automobile cylinder oil. The kerosene cuts any gummy substance that may form on the gears and thins the oil so it gives perfect lubrication. A few drops of this mixture put on the gears every two or three days has given perfect satisfaction, and makes the separator run so smooth and easy that an eight-year-old child can operate it.

EDITOR'S NOTE: The foregoing account is published as an interesting personal experience, but the best lubrication of cream separators is usually secured by using a high-grade oil made especially for cream-separator use.

Judging Cheese Quality

By R. Robinson

TWO popular ideas concerning cheese are erroneous. One is that cheese is simply a condiment, as witnessed in the tiny speck usually served with a piece of pie; and the other, that cheese is not easily digested.

I refer to the common American Cheddar cheese, such as we meet with in every grocery store, mounted on a cheese-cutting machine. Its digestibility depends altogether on quality. If the consumer would insist on getting a smooth-textured, mellow cheese, that melts easily in the mouth like firm butter, without any sour or biting taste, or that feeling on the tongue caused by chewing fine corn meal, the quality of the cheese would very soon improve, as the cheesemakers would be compelled to make an article such as is required for the English market. Cheese of this description is one of the most wholesome and easily digested items of food that the country can produce, and will be assimilated by the most delicate stomach.

On the other hand, cheese that is made from partly sour milk, or from milk that has not a sufficient quantity of rennet added, or has been allowed to lie too long in the whey, in the curd stage, or was not properly "cooked," will develop a harsh, crumbly, sour-flavored cheese that will, in a short time, "bite" the tongue and feel mealy in the mouth.

Such a cheese is neither palatable nor safe to eat, never was safe, never will be safe, and will be more dangerous as it gets older, as the digestive process of the rennet has been counteracted and nullified by allowing too much acid to develop either in the milk or during its manufacture.

I am very sorry to say that this kind of cheese is too often found on sale in all our cities, for there is no question that since America ceased exporting cheese, American Cheddar has gone considerably "off flavor."

Anyone troubled with indigestion or general debility of the stomach will recall that the first medicine given or prescribed by a doctor was probably pepsin in some form, either mixed with some other kind of drug, or a little in water, or a few drops on a lump of sugar, or a teaspoonful in a bowl of sweet milk allowed to stand an hour or so until firm, then to be eaten like custard—simply one form of cheese called "slip."

Ripening Process Explained

Well, the effect of rennet on cheese is to digest it, and this effect is going on from the moment rennet is mixed with the milk, and will go on until it brings the cheese to a stage where it is no longer fit for use, just as an apple becomes more and more mellow until it reaches the stage of decay.

We call this process in cheese, ripening or curing, caused by bacteria, which no other known agent except rennet will produce of the right species. In other words, a good American Cheddar cheese is a predigested food, and the only one we have in common use.

Let us now consider the food value of the American cheese compared with meat, and also the money value of each, to the laborer as well as others. A good American Cheddar cheese when ripe enough to eat, say any time after six weeks, is composed of water 30 per



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Solve the Puzzle Get 5,000 Votes

The letters in the squares above, when properly put together, spell three words mentioned in this ad. The first word has four letters, the second word has two letters and the third word has three letters. Send your name and address with your solution to this puzzle and I will give you 5,000 votes. Remember, it is EASY TO WIN an auto from me.

Send me your name and address quick—then after you have heard from me you will be surprised at how easy you get an auto without spending a cent for it. The pictures at the right show three people to whom I gave automobiles on January 15th. There's nothing difficult about getting an auto from me if you act quick!

Everyone Wins

No matter who you are, where you live or what you do. You have just as good a chance to win an auto as either Mr. Halbert, Mrs. Kilmer or Mrs. Bishop. They answered my advertisement just as I want you to do. I am allowed to spend thousands of dollars every year to give away autos and other prizes to make new friends for my company—You might as well get one of these autos as anyone else.



Dear Sir:—"When you told me I was the winner of the Overland, I could hardly make myself believe it. Please accept my thanks for the kind treatment you gave me and for the fine prize I so easily won."—Paul Halbert, W. Va.



Dear Sir:—"Words fail me when I attempt to thank you for the Ford Touring Car. I will always speak a good word for your company and for the help you gave me. I hope to be able, some day, to repay you for your kindness."—Mrs. H. B. Kilmer, W. Va.



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T. R. LONG, Manager
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cent, fat 30 per cent, proteids 35 per cent, ash and minerals 5 per cent. These figures are about average proportions. Fresh meat of any kind, free from fat and bone, contains from 60 to 65 per cent water, leaving only 35 to 40 pounds of solid matter in 100 pounds of boneless meat, compared with 70 pounds of solid matter in every 100 pounds of cheese, or at least double the food value of the best meat. If the meat has a large proportion of fat, most of that goes out in cooking.

One pound of boneless meat costs an average of, say, 30 cents. One pound of American Cheddar cheese costs from 20 to 30 cents, depending on the season of the year or the year's output. Four ounces of meat costing seven or eight cents is a small portion for a working man, after it is cooked. Four ounces of cheese, at seven cents, have all the food value of eight ounces of meat, both in protein and fat, while the fat is in palatable and digestible form in right proportion.

Pleasant Work for Young Folks

In brief, cheese is a perfectly balanced, predigested food, containing all the elements required by nature to supply the wear and tear of bone, muscle, and blood which our bodies need every day.

Three pounds of cheese per capita is all that the people of the United States consume in a year. The total amount manufactured according to latest statistics is 320,000,000 pounds in twelve months. If thirteen pounds instead of three were consumed it would still be only four ounces a week for each man, woman, and child for a year, but it would bring the total to 1,300,000,000 pounds.

Farmers' boys and girls would have something to do at home that would be sure pay, for, in spite of all that is said, few young men or women leave the farm from choice. Usually there is not enough for all hands to do that will pay them to stay. More land would be brought under cultivation and old fields would be improved, thereby producing more and better crops; more pork would be raised; more fowls and eggs produced; so that the far-reaching effects of such an insignificant item as eating 10 pounds more of cheese in a year would be felt in every section of every state in the Union, adding hundreds of millions of dollars to the farmers' produce account every year.

Less Wasted Silage

By Thomas Keene

AN INVESTIGATION by Prof. Oscar Erf of Ohio shows that silage exposed to the air decays not in a straight line, but much more rapidly near the edge than in the middle. The dotted line in Fig. 1 shows the natural line of de-

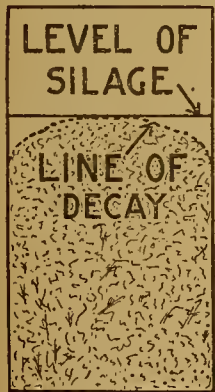


Fig. 1



Fig. 2

cay. This fact has been observed by silo users, and it is also a matter of general knowledge that the line of freezing closely follows the line of decay.

In other words, the mold and other agents of decay work where there is not only air but also some warmth. By removing silage in the manner shown in Fig. 2, you can thus do away almost entirely with frozen silage and also spoiled silage. In winter two inches of silage a day must be taken from the top, and in summer from 2½ to 3 inches. These of course are the smallest amounts required to keep ahead of natural spoilage, and when the number of stock kept permits four or more inches to be fed daily, there need be scarcely any loss.

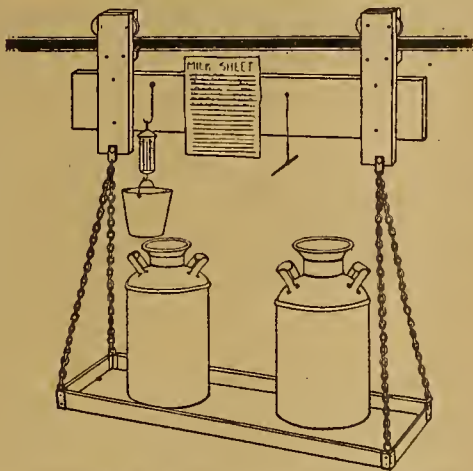
Ingenious Milk Carrier

By E. R. Brown

ON a modern Ohio dairy, where every practical improvement is made that will pay, I found this labor-saving device. There is a line of stanchions which is probably 120 feet long, and with the usual method of working each milk pail would have to be carried to the end of this line, where the milk-room is located.

But the owner, who is the herdsman, thought the track for the manure carrier could be made to save all this walking. So he rigged up the contrivance illustrated. The bottom of the frame is 5 feet long and 20 inches wide. It has a railing an inch high around the edge to keep the cans from slipping off.

He sets two 10-gallon cans on this frame, which leaves a place in the middle for a milk pail to set while pushing the carrier along from cow to cow and finally back to the milk-room. Securely



Portable scale and record saves milkers' time

fastened at the top of the carrier are the milk scales. Just beside the scales is the milk sheet. A board large enough to hold it is fastened to the same frame. And of course there is the usual pencil on a string.

With two, or even three, milkers who milk cows pretty close together, you can easily see how much time is saved every milking time. And now that the cost of good milkers is so high this amounts to more in a month than one would think. I rather doubt if a man could make the trip on an average for the entire length of the stable in less than 40 seconds. With 30 cows that means about 20 minutes twice a day, or 40 minutes saved on this alone. The outfit nearly pays for itself in a month at that rate.

Burlap Fly Blanket

By David Ensign

THERE are some preparations that will undoubtedly keep flies away from cows for a few hours, because we have tried them. But most of them will not do the business very well.

Last year I saw a farmer let his cows into the stable for their milking, and he didn't attempt to spray them with any fly "knocker" at all. He just placed a small blanket of burlap over each one as he went to milk her. This strip of heavy burlap reached about two thirds to the floor and the full length of the cow. The result was a quiet, easily milked cow with almost no fly trouble during the whole operation. One strip was all he used for all the cows. After being milked they were left coverless.

Cash Sales vs. Trade

By Mrs. S. E. McCoy

THE size of my dairy will be considered somewhat limited, for I keep only one cow, a Holstein, and have no cream separator. But the benefits of cash sales are so much greater than a "trade" that FARM AND FIRESIDE dairymen may perhaps be interested in my experience.

The milk is first strained into shallow enameled pans, and after thirty-six hours is carefully skimmed with a spoon. The cream usually tests about 27 per cent butterfat, for which I am now receiving (this is written in February) 37 cents a pound of butterfat. Previously I had been selling my surplus butter to my grocer at 25 cents a pound, taking in exchange groceries at high prices.

Now I am saving the labor of churning, and besides I have the satisfaction of selling for cash on a standard market, for here in Illinois butterfat is a standard commodity. Thus I trade where I please and can buy goods cheaper for cash. Even on the small scale mentioned I am convinced that it pays to sell cream rather than accept the prices ordinarily paid for butter by country stores.

One of my neighbors has for the past six weeks been selling \$1.15 worth of butterfat each week from two very ordinary stripper cows, besides supplying her family of eight with butter. Previous to this she had been receiving 75 cents weekly from her surplus butter. Hence, she profited to an extent of \$2.40 during the six weeks by selling butterfat instead of butter. While these figures cannot be considered exact, since no definite account was kept, they are the result of experience and close observation.

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Live Stock

To Reduce Cost of Protein

By G. L. Rothgeb

AT PRESENT prices of shorts or middlings, protein, which is the element that it is bought for, costs from 10 to 12 cents a pound. To make a balanced ration, protein is the one thing the stockman cannot produce for winter feeding of hogs, and mill feed is the most common form in which it is purchased. As yet the price of tankage has not advanced materially. Sixty per cent digester tankage can be bought in our market here in Virginia for about \$3 a hundredweight, making protein cost 5 cents a pound. In addition to protein, tankage contains mineral matter that hogs relish very much.

From experience I know that a ration containing ten parts of corn and one part of tankage is hard to beat for fattening hogs. Therefore, when protein in tankage costs 5 cents a pound and double that in mill feed, it seems that tankage should take the place largely, if not entirely, of mill feed for hogs.

For pigs there is nothing so good as milk. As butterfat is abnormally high and promises to continue so, why not divert some of this whole milk to the separator and feed the skim milk to the pigs, chickens, and calves? In selling butterfat we are selling less soil fertility than in any other commodity that we produce. At the various experiment stations, experiments made on the feeding value of skim milk vary a great deal, but all agree that when fed to young hogs and chickens best results are obtained.

The writer believes that skim milk fed to well-bred stock will pay 50 cents a hundredweight or better. A combination of pure-bred dairy cattle, pure-bred hogs, and pure-bred chickens is hard to knock out. Most of the crops raised can be fed and returned to the land, constantly enriching the soil.

Collar Causes Balking

By R. E. Rogers

JUST a few days ago I heard of a horse that was classed as a balker but was not deserving of the name. The owner bought a team, and for a few days everything went well. Then he hitched onto a big load and started for town, about three miles from the farm. One horse didn't want to pull. He would stop and hold back and finally acted pretty stubborn. After the trip was finally made the owner got off and looked things over. He found a short nail sticking through the collar almost at the pulling point.

Now do you blame the horse? I have had a similar experience. I do not know why these nails should be left in the collars, except because of a careless workman.

I have seen horses act as if they didn't want to pull because of the size of the collar they wore. It was too light for their work. Just because a horse isn't a full-sized drafter doesn't mean that he doesn't need a good-sized collar. At least it should not be of the driving-harness type if the horse is expected to work to best advantage.



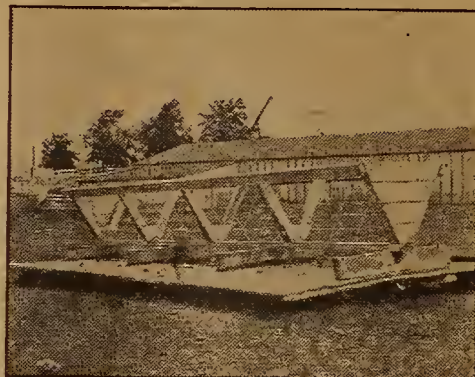
Angora goats are used successfully on many hilly and wooded farms to clean up the underbrush and weeds

Hog Feeding Rack

By Earle W. Gage

THERE is no possible economy in feeding forage to hogs in the pasture unless it is fed in a feeding rack. To help hold the pasture for a longer period, or to keep more hogs on the same acreage of grazing land, build a frame rack, covering the sides with ordinary hog-fencing wire stapled on the frame. By placing this on a board foundation, the loss of chopped hay or roots is brought to the lowest point.

Alfalfa hay makes a very good ration to feed to hogs both summer and winter. If your pasture gets short, and if you desire to hold the plants during the hot summer days, cut the alfalfa in the part of your field where it stands highest and thickest. This should be run through the hay chopper, cutting the stalks to about half-inch lengths. This hay may be mixed with chopped or



rolled wheat or barley, moistening the mixture with all the water that it will hold, and feeding after soaking for twelve hours. If you want to market your hogs at seven or nine months of age, make the ration one-fourth alfalfa and three-fourths grain.

Feeding the Idle Horse

By E. J. Johnston

THE matter of keeping the idle work horse in good condition with a minimum outlay is a problem that often confronts us. There seem to be two classes of feeders, with widely varying plans of procedure. One class, feeling that the horse is not working and paying for his keep, almost starves the poor animal. Consequently spring finds it in poor condition for the heavy work necessary at that time. Results of this poor sort of economy are soon apparent.

I had a farm neighbor, a few years ago, that was the extreme type of this class. He would take one ear of corn and break it, giving half to the two sorry-looking specimens of horseflesh that he owned. "Just to satisfy them," he explained. "They don't need much when they're not working." One of the horses was so well "satisfied" that before spring he saved his stingy owner the expense of even half an ear of corn by quietly lying down to die.

On the other hand, too much food is often given the idle horse at the expense of his digestion and general condition. A little thought given to the subject will insure a low feed cost and yet keep the horse in good condition.

An idle horse can be fed more roughage than a working horse, and bright oat straw and clean corn stover may replace at least one half the hay ordinarily fed. The experiment station of Pennsylvania, after considerable experiment, recommends one and one-fourth to one and one-half pounds of a combination of one part mixed hay, one-half part oat straw, and one-half part corn stover, daily, for every 100 pounds live weight of horse.

Aside from this roughage, some grain will be needed to keep the animal in a thrifty condition.



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Teaching Horses to Stop

By R. E. Ames

TO SAY the least it is not very pleasant to have a horse on the farm that will not stop or start when he is told. Most of them can be taught to do this, and it is a mighty good investment on the time spent to have them mind you when you want them to.

I would hardly care to say that any horse could be taught to stop with the usual "Whoa!" at all, because I have seen horses that couldn't. I use one right now that is almost a fool along that line, though pretty sensible in some other ways.

The method I have found quickest is a rope about 30 feet long and three-eighths inch in diameter. A snap in the end fastens to one of the rings in the halter or bridle, and the rope runs under the jaw and out through the other ring. This gives a good place to make impressions on when the rope is pulled up short.

Now start the horse and tell him to stop. Of course he will not, or you wouldn't be bothering with him. Pull up sharply on the rope if he doesn't. Try it a few more times with a short piece of the rope between you and the horse. Send him back on his haunches if necessary. Then take more rope and send him along and tell him again.

When he thinks he is getting away far enough so you have no control over him any more tell him to stop again. Bring him to attention again. Most horses are ready to mind after a few trips of this kind. Then when you feel pretty sure that he will mind, let the rope drop off and keep fairly close to him and try a few more times. If he can be taught anything he will stop for you anywhere in the yard when you tell him.

I have one mare now that sometimes opens gates and gets out into the road or field alone. So far I have never had to take any baits or whips to get her. I get as close as I can and tell her to stop, and she stops till I come up and bring her back to the barn. These things alone are worth the time it takes, because you know that when a horse gets away it usually is at a time when you are in a hurry. The more you chase him the farther he runs, and no man can outrun a horse. You've got to outrun him with your wits.

When the Horses are Trained

But there's another side to it. My father was driving a team and light wagon loaded with empty dry-goods boxes some time ago. I was smaller then, and had been fussing around with that team, partly for fun, to see if I could teach them some things along the stopping line. Just as he was coming across a long river bridge on the way home a box fell off in the road. It happened that a girl driving just behind the wagon had a horse that was easily scared.

My father left his team to help the girl keep the horse from backing into a large ditch near the bridge. While he was away his team started home, as it was cold and they were feeling good. But because they had been taught to stop, his calling to them from about 50 feet away made them stop. They started the second time, and were also stopped by the voice. By that time the box was put back on the load and the girl drove on. But had it not been for the fact that the horses stopped, there would have been a runaway and also more trouble with the other horse when the team started.

I remember another team that was only half trained, and which, when frightened, started to run. The owner called to them, but it didn't help any.

They knew they weren't supposed to mind. The driver just hopped onto the step on the wagon box and held on for about a half mile over rough roads until he could balance himself enough to get into the wagon and stop the horses with the line. That is the other side of it. No damage done, but it was only a chance that saved him.

Two Ways with Sheep

By R. B. Rushing

MY FIRST observation of a sheep failure occurred when I was about eighteen years old. I worked for a man who did things on a large scale. He had a big farm and always planned to do big things and start in big with everything he launched. He spent most of his time in town, talking politics, and left the work to be done by hired hands.

One day when at a sale he had an opportunity to buy a flock of sheep at a fairly low price. Although he had never had any experience with sheep, he purchased 75 head and brought them home. It was in the fall that he purchased the flock, and by spring he had less than 50 in all, including his lamb crop.

His losses were due to two things: First, he started in with too big a flock and without experience. Second, he was not interested in the sheep, or at least did not give them as much attention as he should have done. They got away, somehow, every day or two. He scarcely ever went among them, and perhaps would not at all, had he not been called when trouble came.

In contrast with this bit of experience is the case of another man who began his work with sheep as a shepherd on the farm of a practical farmer. This farmer told me one day how it happened that he engaged the man to care for his little flock, which, though small, was gradually increasing.

"I was leaning over the fence one day," he relates, "when this man came along. He told me he was out of a job and needed something to do. He was willing to do anything, any kind of honest work. I didn't need a shepherd very much then, because we only had a few sheep, but he seemed willing to work cheap, so I told him he might come next day and I would see how he could handle the sheep barn."

"He knew absolutely nothing about sheep; in fact, he had not had any experience with live stock, but he took an interest from the beginning."

"He really loved the animals, and the more he worked with them the more he seemed to love them. He seemed just as much interested in providing for them as he was in providing for his own wants, and the sheep never lacked for attention after he took charge of the little flock."

The method of caring for the sheep he of course soon learned, under the careful supervision of the practical farmer, and from that time on his success has been, according to his own statement, entirely due to the fact that he spent most of his time with the sheep themselves and tried to put himself in the place of the sheep, in recognizing their wants and needs.

At lambing time he actually lives with them in the sheep barn. He has a room where he can sleep when the sheep do not require his attention, but his ears are attuned to the sheep language, and the least little sound from the sheep pens that means trouble awakens him at once.

This man has become a master shepherd. The result is that the flock has become very profitable indeed, and in addition to this, many of the sheep take prizes at most every place they are shown.



Although these mules have been roughed through the winter, an increased grain ration will soon put them in shape for spring work

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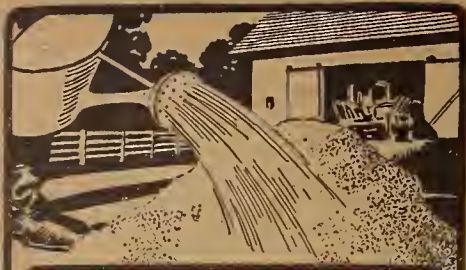
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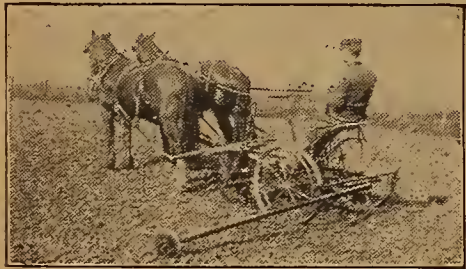
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Garden—Orchard

Pruning Outfit Important

By B. F. W. Thorpe

NOTHING required for a successful Orchard equipment counts more in results secured than does a practical pruning outfit. The usual handsaw or bucksaw cannot make many of the required cuts without leaving stubs. Every stub left when cutting a branch of much size is almost sure to leave a weak spot in the future development of the tree as a result of germs of decay entering the slow-healing wound.

An improved pruning saw, with arched frame and narrow blade having a swivel action, now allows the pruner to make his cuts at any angle. By means of this improvement the sawing can be done in narrow crotches and where branches would interfere with the regulation type of saw. An improved pruning saw, a free-cutting handsaw for the larger limbs, and good pruning shears with extension handles will practically double the pruning work that can be accomplished in a given time as compared to the hit-or-miss pruning outfit too often found in the hands of the orchard worker doing this important job.

A Post-Hole Transplanter

By J. Hoover

A NEW kink in transplanting plants that require specially good usage came to my attention the other day, which was making use of a post-hole digger for making the hole into which the plant was to be set and then using the post-hole digger to take up the plant along with a generous surrounding body of soil, without disturbing the roots and rootlets in the operation. This new plan was being used to take corn, beans, cantaloupes, and other plants from a hotbed where they had grown to the height of four to six inches, and were to be transplanted into open ground.

By this means the plants were taken up without any disturbance, and reset in the holes previously made; then, by loosening up a little on the handles of the post-hole digger, the plant and the surrounding soil was left intact. Then a dipper of water cemented the edges of the hole where the plants were reset, and there was not the slightest wilting of the plants afterwards. By this means the more delicate plants were given a start of from two to three weeks over what would have been possible to give them by seeding in the open ground.

All-Purpose Spray Outfit

By S. Thorne

ON FARMS having only a few acres of orchard and where several acres of potatoes, truck crops, and small fruits are raised with perhaps some weed spraying to do, there is sometimes difficulty in deciding just what type of spray outfit will best meet these varied requirements.

I find that excellent satisfaction is being secured under such conditions by

making use of a large hand spray outfit with barrel or strongly hooped tank like that shown in the picture at the bottom of this page.

These outfits can be made to give excellent service by using a double-cylinder hand pump, but if help is scarce a small power outfit will be preferable.

These barrel sprayers are provided with four- or six-row nozzle attachments to use in spraying all kinds of crops grown in rows, and also for weed-spraying with broadcast nozzle attachment.

The same outfit also gives equally good service for orchard-spraying, as the spraying attachment can be quickly clamped with set screws onto any wagon or cart.

This type of sprayer can be bought at a cost of from \$15 to \$50, according to the capacity of pump and supply of nozzles, couplings, and reach of hose, etc., furnished. A bull or yoke of bulls or oxen make a first-rate hauling team in hilly orchards when the ground is soft and a steady, powerful team is required.

Try Paper Plant Holders

By F. W. Orr

PAPER plant holders made out of medium-weight cardboard prepared for that purpose are coming into much favor for use in hotbeds, cold-frames, and even for starting seedling plants in basements or dwelling-house windows.



The sheets of cardboard of proper size and cut ready for forming can be procured from some supply houses, or the work can be easily done at home by using paper suitable for the purpose.

A wooden block of suitable size and shape about which to form the paper box and some wire staples are the only equipment required. These finished pasteboard boxes can be fitted into shallow boxes or flats and placed in the cold-frames or hotbeds while the young plants are getting a start. Then they can be carried in the flats direct to the field where they are to be set.

Solid Color in Sweet Peas

By L. H. Cobb

MOST people plant mixtures of sweet peas, but if you want something especially attractive buy a few packets of the best colors separately, and plant so you get a solid mass of one color or harmonious color combinations to suit you. To my notion nothing shows better taste than planting one or two colors together instead of a hit-and-miss mixture.

A packet from any good seed house will give a nice lot of plants, but a half-dozen packets will give you all the best colors in sweet peas. If you have any choice of colors, two or three different varieties of that shade can be used to add variety in form and tint.

One year I planted a long row in sections of separate colors, and the result was all that I could ask. Everybody remarked on the beauty of that row, not because the flowers were any prettier than other rows round about, but because of the separated colors. The colors in sweet peas do not conflict, but it is the massing of color that heightens the effect.



This hand-power spray rig can take care of five or ten acres of orchard, and other crops in proportion, but the work is no "snap"

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So You Won't Walk So Much

By R. E. Rogers

OF COURSE you do things on your farm that are unnecessary. I do too. But I can see the things that you do that I wouldn't do. You can see what I do, and you wouldn't do that way at all. Here are some things that I do. How do you do?

When setting tomato or cabbage or any other plants so many farmers set a row—if by hand—a little ways, then come back after the tray or basket for more plants. Yet it is much easier and saves walking just half as much if you set up one row as far as half your plants last, and one back to the basket with the remainder of them. Then you are ready to carry your basket up to the new starting place. Otherwise you walk back as far as you plant. If someone is dropping the plants for you, then take either one or three rows at once. This will also save the return trip, which gets you nothing except tired legs at night.

In using a drag or harrow with the team I find that if the land is to be dragged off by going to the right or left continually it pays to start back from the end of the field a few rods. Then every time the team comes around the end of the dragged land a new place is harrowed. If you start at the end the same place is harrowed a dozen times at the edge and tramped over by the horses also. The same thing will of course hold with any other team work of like nature.

When the horses are unharnessed I notice so many men stripping the harness off and then going back to the horse's head to halter him. The halter can as well be put on before you leave his head just as soon as the bridle is off, and thus save all this extra walking. With several teams to handle this would make a good many minutes' difference in the chores at night. And minutes are worth something these days. In starting to unharness, why not unbuckle the crupper, then the belly band, and then the hames. You save walking back and forth beside the horse a couple of times by this.

Watch yourself for a couple of days and see how many foolish things you are doing. If you were to come here and watch me you would see some that looked foolish to you. I don't see

any seedsman who is selling this variety. I planted a hill or two of these beans between every two hills of corn about the first of June, after the corn was up in good condition. Some I planted as late as June 15th. I made a practice of planting a hill of these beans in every unoccupied space possible. As they ripened at different times I picked the ripe pods and spread them in the attic, making four pickings. As a result the beans were well ripened, and after threshing they were spread out and hand-sorted. All of this took time and labor, but by doing the work in the evening this bean crop was practically all profit. These beans sold readily at \$6.40 a bushel wholesale.

Spade for Setting Plants

By E. R. Everett

DO YOU always dread the setting of garden stuff on the farm? Lots of folks do. That is because they have to get down into the soil with their hands and have to bend their backs to do so, and keep them bended.

The next time you want to set a strawberry, raspberry, tomato, or any like plant, just get the ditching spade. Push it into the soil as far as the hole needs to be to set the plant into, and move it back and forth a few times. Then place the plant in the hole and step along the side with your foot. This presses the dirt firmly around the plant and the job is done. The only bending there is to this is in placing the plant in the hole.

You will wonder if this will work in a dry time. It will. Some years ago we set several rows of strawberry plants by the old method and several by the spade method. A drought came at once. A far greater number of the spade-set plants lived than of the others. Since then we have used the spade.

Berries Half a Mile High

By H. Rowinsky

MY STRAWBERRIES are grown at an altitude of 2,900 feet above sea level on \$25-an-acre stump land which is a part of what was the Cœur d'Alene Indian Reservation in Benewah County, Idaho. There are still thousands of acres of this stump land just as well



The strawberry crop is a country-wide success, both in yield and profit, if the grower does his full part

them—if I did I would try to change the system and do a better way. But we're all doing extra work because we don't think or don't watch ourselves or don't know how to change.

Fence a Profitable Trellis

By A. J. Legg

WE HAVE our garden enclosed with a 58-inch woven-wire fence. Of course we cannot get the team up close to the fence to plow it, so for the last few years we have loosened the soil around the fence by hand power and, after fertilizing it, planted a row of garden peas around the fence. They vine on the fence, and thus we avoid the tedious job of sticking them with brush. The cultivation keeps down weeds and grass around the fence.

Last year we had pea vines that went as high as 18 inches over the top of the fence, heavily loaded with peas. We grew as many peas as we needed for family use, around the garden fence on soil that otherwise most likely would have been left to grow grass and weeds.

My Best Bean Crop

By C. E. Davis

LAST spring I figured that owing to the European war and the Mexican mix-up the call for beans would be heavy for the army and navy diet, with the result that the price of beans would be good.

I have an especially large white kidney bunch bean which cooks the quickest and suits our family taste the best of any we have found.

At the present time I do not know of

adapted to berry-growing as is my own. This is a natural berry country, but the berries mature late and are ready for the market after strawberries grown on the lowlands are all out of season.

I begin to pick my strawberries about June 15th and continue until about August 1st. I have picked as high as 100 marketable strawberries from a single two-year-old Senator Dunlap plant. My berries are shipped by way of the Red Collar Steamship Line to St. Maries and Spokane, where I receive from \$1.50 to \$2.25 a crate of 24-pint boxes.

My plan of raising these berries is to take runners from one-year-old plants, setting them, about May 1st, 14 inches apart and three feet in the row. All runners and blossoms are kept off the vines the first year, and frequent cultivation is given to develop the plants as large as possible. The following spring the cultivator is started as soon as the ground is fit, and continued until the plants are in bloom. Then I put on a grass mulch which holds the moisture for a long picking season. By means of vigorous thinning and plenty of cultivation I can hold the stand of strawberry plants in good condition for three crops, then plow the field and plant potatoes the following spring. By this system I keep my land free from strawberry diseases and raise crops of strawberries of which I am not ashamed.

A SQUARE ROD of land is a small garden, but a Maine club girl, Miss Hilda Sullivan, last year raised beets to the value of \$7.66 for canning from her square rod of garden. She secured a profit of \$6.14 for her labor income from her little garden.

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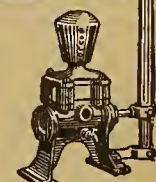
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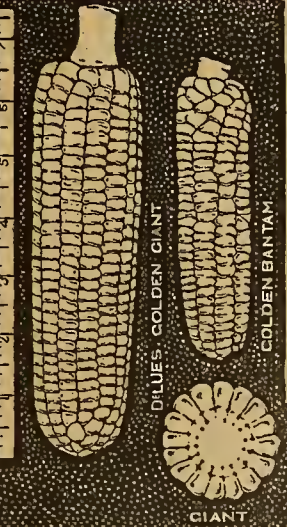
With its 12 to 16-rowed ears it gives nearly four times the yield per acre that the Golden Bantam does with its smaller 8-rowed ears. The stalks are short and frequently produce two ears each. Its orange golden color is richer; it is more delicious in flavor and is equally early.

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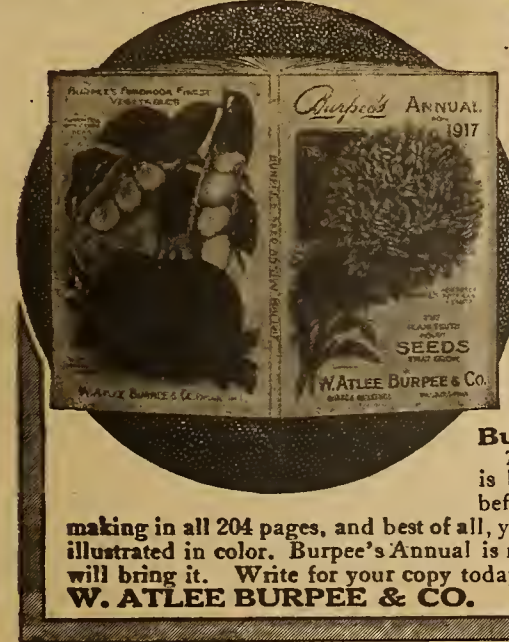
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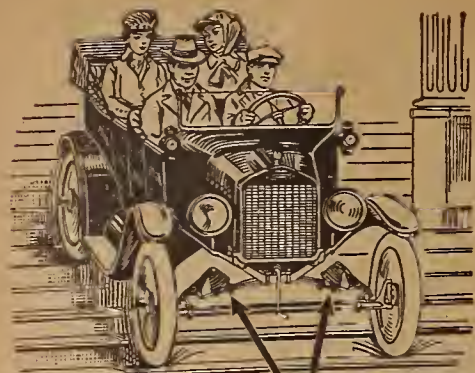
and are grown not only to sell but to grow again. The fact that 1916, our fortieth anniversary, proved to be our banner year, shows that confidence in the House of Burpee continues to grow.

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The Leading American Seed Catalog is brighter, better and bigger than ever before. We have added twenty-two pages,

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W. ATLEE BURPEE & CO. Burpee Buildings Philadelphia



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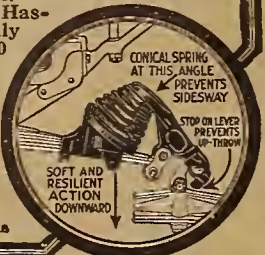
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Poultry-Raising

Clabber for Bowel Trouble

By Florence Knox

ABOUT two years ago I read in FARM AND FIRESIDE a recommendation for using sour milk as a food for young chicks. We have experimented along that line and can truthfully say that the results have been highly satisfactory. But instead of feeding the raw clabber we scald it and make it into cheese. In this form it is more convenient to feed and the chicks like it better. The beneficial effect seems to be equal to that claimed for it in clabber form.

In 1915 we fed all our young chicks the clabber cheese as a regular part of their ration until they were about three weeks old, then gradually substituted whole wheat, but continued the clabber cheese until the chicks were of good-size broiler age. After that we continued an occasional feed of the clabber cheese whenever the milk supply allowed. Not for years was our success as good in raising chicks. We lost not more than one or two from bowel trouble.

With our 1916 poultry operations we were also successful, but our losses from bowel trouble among the chicks was somewhat greater than in 1915. I believe the reason was owing to a scant supply of milk and the unusually rainy season.

It is a relief to have hit on the right idea for preventing the serious loss from bowel trouble among chicks, and we cannot speak too highly in praise of FARM AND FIRESIDE, by which we were put on the right track.

Grease the Gapers

By E. Benfer

DURING thirty years of poultry-keeping I have tried many remedies for gapes in chicks, but the surest cure I have found is to feed the young chicks lard. I give them all they will eat of good pure lard whenever they begin to show any signs of sneezing or other indications of gapes. I feed them the lard two or three times a week for about three weeks or until danger of gapes is past.

About four heaping tablespoonfuls to 20 chicks when they are ten days old will be sufficient for one treatment; and if any is left after they have eaten what they want it can be given to the older chicks or the hens. If the young chicks refuse to eat the lard, add a little ground grain on top of it until they get to know the taste of it.

Wholesale Lice-Killing

By R. E. Rogers

I CAN still remember when I had the bi-monthly job of cleaning the droppings out of the hen houses and removing the hen roosts and soaking them with coal oil every time to kill the little red mites that gathered under the roosts in warm weather. The kerosene was an effective remedy all right, and served its purpose.

We have now discovered a better way.



Note the muslin-covered window screens open inward in this brooder house, which allows adjusting them to fit weather conditions

Every spring when we spray the orchard with the lime-sulphur mixture we drive up to the hen-house door after the droppings are cleaned out and the floor cleared of scratching straw and squirt a few gallons of the home-made lime-sulphur mixture over the interior of the house. We do not stop with the roosts, but thoroughly wet the sides, ceiling, and window frames as well. It is a pretty yellow-looking mess after it is done, but soon changes to white, and doesn't look so bad after all.

But the main point is that the lice are not there afterwards. I do not pretend to know why, but in our hen houses it is the result we are looking for.

Sometimes in the summer during an extra busy time it is almost impossible to get the hen houses looked after as often as they should be. After this lime-sulphur soaking it doesn't matter so much if the houses are not looked after for a time, because the lice will be shy of houses thus treated for months. The cost of the lime-sulphur is saved many times as a result of freedom from lice and poultry diseases.

Egg Cases That "Make Good"

By V. Ross Nicodemus

WE HAVE been shipping eggs by express to the city markets for about two years and a half. At first we used just second-hand cases that had been used for storage eggs, because we did not know where to get anything better. The use of these cases compels one to do a lot of work that a busy poultryman does not have time to do. Usually they must be cleaned and renailed, and often new tops and bottoms put in.

We soon learned, however, where to get a heavier case with a hinged lid and with strong flats and fillers. We are now using a commercial case. It is made of white pine. It has a hinged cover that will fall clear back so that the hinges are not pulled off by the lid as it lays back over the side. The fillers are exceptionally strong. They are wired together at the sides so that the corners cannot break out, as so often happens with a light filler. We have our name and address printed on the front side of each case, together with the words "Return when empty to —." When empty they are returned, and we can use them over and over again. We have some of these cases in use now about two years ago, and they are still good for an indefinite time. They are the best things in the shape of an egg case that I could find on the market.

Look Well to Litter

By F. W. Orr

KEEPING the poultry house supplied with the right kind of litter in proper quantity is a much bigger factor in getting a profitable yield of eggs than is generally considered. Damp and moldy litter is worse than none, as it is a fertile source of disease germs and the dampness also keeps the birds in a chilled condition just suited to developing colds and other diseases.

Wheat straw is my preference as a litter, and this seems to be the general opinion of successful poultrymen. Two or three inches of litter is not very much better than none, in so far as compelling sufficient exercise to keep the birds in proper condition. Six to eight inches of straw litter, after it has become settled, is none too much, and if the scratch grain is forked into this litter each time when the hens are fed, they will be kept at work the greater part of the day to get the covered grain. Unless the floor is constantly dry, the litter will not remain in good condition more than a day or two.



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The Lay of a Good Flock

By J. T. Raymond

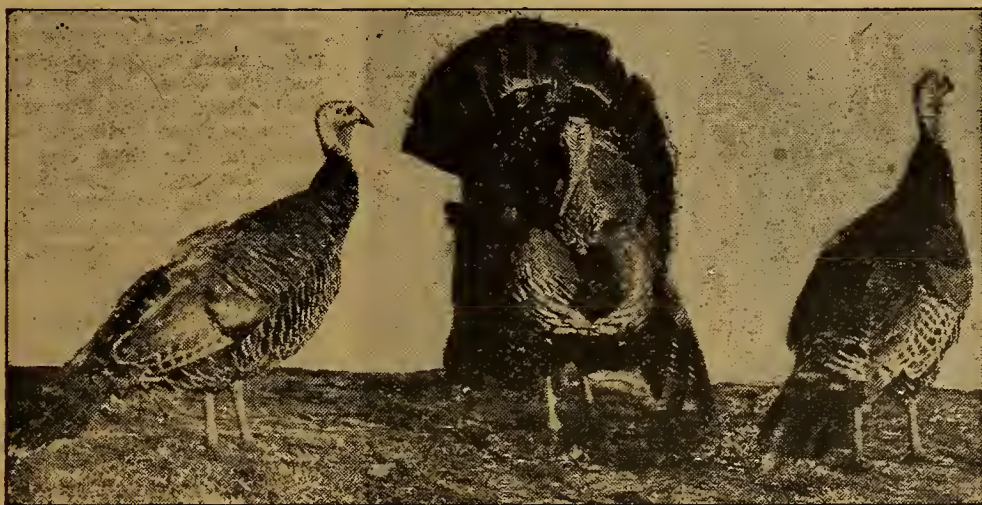
THERE is much loose talk in circulation on the subject of flock production. Capable poultry keepers secure a high percentage from a few hens, tell their friends about it, and soon the uninitiated are calculating princely profits in poultry. That rare bird, the 200-egg hen, is talked so much about that the inexperienced think her numerous. High records, not low records, get publicity. Averages, however, are what count.

Seventy per cent is a very high production percentage in the spring reached by few who keep hens in any numbers. Thirty per cent is a very high winter average. Any commercial poultryman who gets it in October, November, December, or January will boast about it. Moreover, he will make a lot of money.

Commercial poultrymen who attain an average for the year of thirty-five per cent are doing well. The successful ones get an average like that, sometimes go it a little better, but in a census of poultry keepers they would be a minority.

What percentage must a poultry keeper get in order to enter the profit class? That varies, of course, with grain prices and egg prices. To take an actual instance, a New England poultryman whose flock numbered 1,000 figured his daily feed bill in January this year at \$5.50. He fed a dry mash containing bran, middlings, low-grade flour, ground oats, corn meal, meat, and fish scraps, and for scratch feed a mixture of 50 per cent cracked corn, 25 per cent oats, and 25 per cent wheat. Shipping to the Boston market, he was getting 52 cents a dozen for eggs during the month.

To pay for their feed at this time these hens would have had to lay approximately 11 dozen eggs a day or, in terms of per cent, approximately 13 per cent. In actual fact, however, they were doing wonderfully well, laying 25 to 30 dozen a day, or 30 to 35 per cent. This poultry keeper was making each day over feed cost from \$7.50 to \$10. This man always makes money with hens, but this isn't strange considering that he has been a commercial poultryman for twenty-eight years.



This turkey trio shows vigor, maturity, and good type—all of which are foundation requirements for turkey-raising success

A dividing line of 13 per cent production between profit and loss, feed only considered, seems to make profitable poultry-keeping easy. That, of course, is not the case. While the poultryman mentioned was getting 30 to 35 per cent, there were scores in the same county who were getting less than 13 per cent.

A CONVINCING indication of the belief of American poultry keepers in the value of laying contests is shown by the fact that nearly \$2,000 in entry fees had to be returned to poultrymen who wanted to enter hens in the New Jersey Contest after the 100 entries had been provided for.

Economizing Lumber

By B. F. W. Thorpe

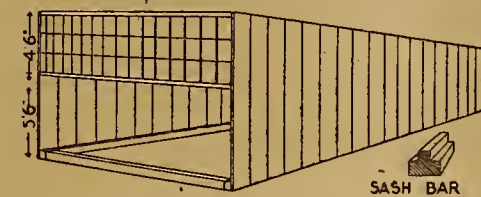
A FARM AND FIRESIDE subscriber has figured out a plan to make the most of his lumber used in constructing poultry houses, hog houses, and the like, and also saving some work with the saw. His poultry house has a front elevation of 10 feet and a rear elevation of 6 feet. He buys 16-foot lumber, and can then get from each board a length to fit for siding, one board for the front end, and the part cut therefrom he uses for siding the rear end. Thereafter each 16-foot board cut will supply a board of the right length to continue the siding towards the center from each end.

The upper 4½ feet front of his building is of glass, and the lower 5½ feet of netting; and the lower portion is ar-

ranged to be covered with a cloth curtain when required.

The roof is covered with prepared roofing, and all of the lumber is matched for sides and ends. He makes these poultry houses of any width required. Using the boards in vertical position insures quick drainage of water and, kept painted, this type of house lasts well. When using this plan of cutting lumber to fit, it is of course more important to have dimensions of building decided before buying the lumber.

Poultry houses of portable type, to be used for brooder houses and for breeding pens, can be built in the winter un-



der sheds or in the barn, where the work can be done comfortably, and they will then be ready for early spring use.

"Hoppers" Marketed for Cash

By Mrs. J. H. Bland

MY LAST-YEAR turkey capital stock consisted of one two-year-old tom and two two-year-old hens. The hogs got the two first clutches of eggs, and the second, third, and fourth clutches were set under chicken hens and every egg hatched a vigorous poult. I never lost one except those destroyed by rats and hogs.

The first 15 hatched May 27th, the second hatch (16), June 29th, and the last (14), July 23d. I sold 12 of the larger ones November 21st, which weighed 12 pounds each, for 21½ cents a pound. December 21st I sold 12 that weighed 12 pounds each at 20 cents a pound, making a total of \$69.76 for the 24 turkeys. I now have 10 left that weigh 8 or 9 pounds each.

Raising my turkeys here in Kentucky was not very expensive, but they have been a lot of trouble. The chicken hens left them about the time they were feathered, and I had to mother them. They did well until they were about the size of a chicken hen, then the hen-brooded poult began to get poor and so

weak they could hardly stand alone. I don't believe they ever saw a grasshopper, for they hung around the house and never tried to find any bugs to eat. I saw they were going to die if I did not do something for them. Every morning after the dew dried off I took them for a walk in the pasture field, and two were so weak I had to carry them. I actually gave them the first grasshoppers I believe they ever ate. They waited for me to tear them to pieces before they would eat them.

After they got so they would hunt for the hoppers I would slip quietly away and leave them to catch hoppers until they missed me.

If we turkey raisers would learn more about the food requirements of turkeys, we should be more patient with them when we have to search the whole farm in order to get them back to their roosting quarters before nightfall. In the light of my experience their roving habit is an excuse for their enormous appetite for insects. They are but heeding the demands of their growing bodies for more energy-producing and tissue-building materials.

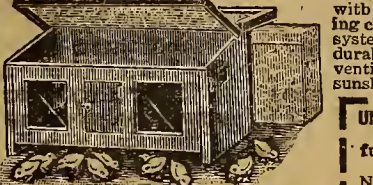
REPORTS are coming in stating that breeding geese can be kept through the year for 50 cents, or thereabouts, each in addition to the pasture in summer and second-crop clover provided for their winter feed. During the summer season scarcely any grain is required when on good pasture, and during the winter they will do well on good second-crop clover or alfalfa, with a mere flavoring of grain.

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The Blue Envelope

Fischer is Puzzled by a Curious Cipher Formula

By SOPHIE KERR

PART VII

I WAS so startled by the words of the strange woman that I just sat still and stared at her. "Why—what do you mean?" I stammered. "Who—who are you? Of course I sha'n't come with you!"

Meanwhile the two middle-aged men stood there on either side of me, and I suddenly realized that they were acting in concert with the woman. It was a trap!

"Don't make a fuss," the woman said, still very quietly. "I got papers here showing that you're my niece and incorrigible, and that I'm taking you to a private school where you're going to be placed under restraint. These two men are detectives who have been sent by the judge in New York to help me in case you make any trouble. The conductor on the train knows us. It won't do you any good to appeal to him." This in response to my wild glance about the car. "Come," she repeated, and she took hold of my arm.

I have often wished since that I had made a scene and appealed to the conductor and the policeman outside the station and everyone else within hearing, but the woman's manner was so assured and the whole thing took me so much by surprise and seemed so diabolically perfect that I couldn't think of anything to do or say that would be at all adequate. The woman pulled at my arm,

and we four moved slowly out of the car, the two men acting as guards. We went out on the long concrete platform there at the North Philadelphia Station and hurried over to the stairway which goes down to the street. A shabby limousine was waiting there, and into this the woman determinedly shoved me. She dismissed the two detectives with a nod and got in and closed the door behind her. While she was doing this I had tried the door on the other side. It was locked. The woman sat down beside me and, as the limousine started, she pulled down the shades, but not before I had seen, sitting outside beside the chauffeur, Mr. Kennedy's sinister caller, Fischer.

"I am sorry to have frightened you," began the woman in a rather apologetic voice, "but it was very sensible of you to come quietly. We were quite prepared for anything you might do. You needn't worry about yourself—nothing is going to hurt you and we will only keep you a few days, possibly a week."

I didn't answer. I sat there turning the whole thing over in my mind. Of course, what they wanted was the sarnite formula. Equally, of course, they wanted to keep me prisoner until the man who stole the formula could get safely out of the country. Fischer was evidently the man. Well, he wouldn't get it without some big trouble first, I made up my mind to that. The next question was—when would I be missed? If only I had not telephoned to Mrs. Harris and said that I was going to Washington and was not quite sure when I'd get back! That might mean a week, or it might mean a day—and Viney, the maid who had taken the message, was the stupidest girl in the world and would be sure to get it so mixed up that no one could tell what I had really meant. Mr. Kennedy was in Toronto, so it would be several days before he returned. The motor was going along faster and faster. We had evidently reached country roads, for they couldn't have run that fast in the city limits. I knew that I wouldn't be able to tell in what direction we were going, but at least I could approximate how far, just by the time it would take us. So I looked at my watch. I had left New York at twelve and it was now a quarter past two.

THE woman beside me kept watchful eyes upon me. She was a big strapping creature, and now that she had pushed her heavy mourning veil aside I could see, even in the dusk of the closed car, that she was decidedly common-looking, with heavy features, little dark eyes, set close together, and a red complexion. Her mouth was big, but rather good-humored looking. There was, of course, a bare chance that I might win her over. So I looked at her and smiled in as friendly a way as I could.

"I suppose I ought to be frightened," I said, "but I can't be with anyone who looks as good-natured as you do."

I was right—she was good-natured and the corners of her mouth went up in a humorous grin.

"I'm too good-natured for my own good sometimes," she said, laying aside her dignified manner and correct English at once and dropping into speech

that suited her face. "But you're right, dearie, you don't need to be afraid of me, or anybody else when I'm around. We won't hurt a hair of your head."

And there was the blue envelope, resting so near the "hairs of my head." If she only knew that.

"Say, aren't you hungry?" she went on. "I nearly starve between meals. Look here!"

She had a suit case with her, and this she forthwith hoisted to her lap with an easy sweep of her fat arm. Either there was little or nothing in that suit case, I reflected, or else she was enormously strong. As she opened the lid and I saw the crammed-in contents, I decided that my companion must have very good muscles. She dug about a little and presently fished out a dilapidated pasteboard box, tied about with pink string. Down went the suit case and, zisssss, the string was torn off the box. There were some solid-looking ham sandwiches, cold buttered biscuit, raisin cake, and oranges. My companion began to eat with a will—and so did I. Over her raisin cake she became quite communicative.

"Your name's Brennan, isn't it? I thought so. Well, it's kind of awkward not knowing each other's name. You can call me Mrs. Davis—Mrs. Augusta Davis is my full name."

"Oh," said I. "I thought maybe you were Mrs. Fischer." And I nodded my head toward the front

to get it out of the country, and then you'll go back to your friends, not a bit worse off."

"But what," I asked, "if after you let me go, I go at once to the police and they hunt you down and arrest you?"

The good-natured creases around Mrs. Davis' mouth deepened again.

"You needn't worry about that," she said. "To begin with, the police ain't likely to get me and, if they do, I got friends. Dearie, you don't realize we couldn't do anything like this unless we'd got powerful influence behind us. I should worry about the police. Here, have another piece of this cake."

IT WOULD seem as if she had talked very openly, and yet, except for her name, she had told me nothing but what I suspected before. I rather liked her, too, and there was something in the way she promised that nothing would happen to me that sounded honest and dependable. Somehow, I knew she meant it. So I ate another piece of cake and began to think over what I must do in order to save the formula.

There was, of course, the fake formula—but would that deceive them? It certainly would not do so long. If I could get a chance to rip open my hat trimming and take out the real formula and destroy it—why, their plans would come to naught in spite of anything

they could do. They might wreak their vengeance on me, but I would have to chance that. I made up my mind firmly to two things—that I would try very hard to destroy the formula, and that, in any case, they should never get it.

The automobile went on and on and on, usually over smooth roads, though occasionally we struck rougher going. From the way the sunlight struck against the curtains of the car it seemed as though we must be going approximately northward. I tried to notice everything that might give me any possible clue, but it was so dark there inside the car, and I was so tired with all the emotions of the day, that I got very drowsy. I settled back against the cushions and presently went to sleep, an uneasy, disturbed sleep, through which trailed a procession of threatening dream figures.

It was pitch-dark when I woke up and the car was bumping about dreadfully. An extra hard bounce threw me over against Mrs. Davis, and her voice brought me to my senses.

"That showfur must be a farmer and used to plowing corn," she exclaimed bitterly, "or else we're jumpin' from crag to crag on the mountain tops. Are you hurt, dearie? I'll bet I've got a black and

blue spot as big as a saucer where I struck that door handle. My land, this has been some merry little picnic party, not!"

I wasn't hurt, and I said so. Mrs. Davis pounded on the glass behind the chauffeur and screamed at him to go more slowly, but he paid no attention, and we were banged about unmercifully for the next twenty minutes or so. At last the car stopped and the door was opened from outside.

"Here we are," said Fischer. "Hustle out and get into the house."

"Hustle out, indeed," said Mrs. Davis. "And I'm probably lamed for life. What does that showfur think he is—" but she laboriously climbed out of the car, for all her lameness, and took hold of my arm in order to assure my accompanying her. We had stopped before a long, low house with a yard before it, enclosed by an old-fashioned picket fence. I could make that much out in the dark, for it was night. Fischer preceded us, and we entered a gate and went up a walk, paved either with brick or stone. He did not knock or ring a bell, but opened the door, and we went into a dimly lighted hall and from there into a room at the left, furnished like any other country parlor might be. There was a lighted hanging lamp over the center table and Fischer turned up the wick. Mrs. Davis and I sat down simultaneously on the haircloth sofa.

"Now," said Fischer, "give me that formula, Miss Brennan, and you will have nothing further to do. Mrs. Davis will stay here with you until she is notified to send you back to New York. It won't be long, probably three or four days, maybe a week."

With the weariness and the excitement and the danger that I knew lurked behind his words, it was no wonder that I trembled. I shook from head to foot. I could hardly keep my teeth from chattering and my hands were so unsteady that I could hardly control them. This was the [CONTINUED ON PAGE 35]



By permission of Vitagraph Film Company

"Now," said Fischer, "give me that formula"

of the car where Fischer presumably was still sitting. "Well, I guess not," said Mrs. Davis scornfully. "That little foreign runt! I wouldn't marry him under any circumstances—he makes me sick. Believe me, dearie, I'm not doing anything as risky as this to oblige him. No indeed—he's an agent, just like I am, for some very important people, and we were instructed to work together. I guess you know what we're after."

"I suppose you want to get Mr. Kennedy's sarnite formula," I said as calmly as I could.

The woman smiled at me jovially.

"Of course," she said. "And you needn't be worried about anything happening to you. You just give us the formula, like a good girl, and then I'll keep you with me for a few days, until we've got a chance

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The story of a boy desperately ill and far from home,
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Pearlie Saves a Life

But First She Has to Put Heart into the Doctor

By NELLIE L. McCLUNG

PART I

ARTHUR had been complaining for some days, and one night his condition was, to Pearl's sharp eyes, alarming. He tried to quiet her fears. He would be well directly; it was nothing—a mere indisposition. Pearl did not know what that was, but when she went into the granary, where he slept, with a pitcher of water for him, and found him writing letters by the feeble light of a lantern, she took one look at him, put down the pitcher, and hurried out to tell Tom Motherwell.

Tom was in the kitchen taking off his boots preparatory to going to bed.

"Tom," she cried excitedly, with all of her twelve-year-old energy, "git back into yer boots and go for the doctor. Arthur's got the thing Pa had, and it'll have to be cut out of him or he'll die."

"What?" Tom gasped.

"I think he has it," Pearl said. "He's actin' just like what Pa did, and he's in awful pain, I know, only he won't let on; and we must git the doctor or he might die before mornin', and then how'd we feel?"

Tom hesitated.

"Remember, Tom, he has a father and a mother and four brothers, and a girl he loves, called Thursa, and an uncle that is a bishop; and how'd we ever face them all when we git to heaven if we just sit around and let Arthur die?"

"What is it, Pearl?" Mrs. Motherwell said, coming into the room upon hearing the young voices.

"It's Arthur, ma'am. Come out and see him. You'll find he needs the doctor. Ginger tea and mustard plasters ain't a flea bite on a pain like he has."

"Let's give him a dose of aconite," Tom said with conviction. "That will fix him."

Mrs. Motherwell and Pearl went over to the granary.

"Don't knock at the door," Pearl whispered to her as they went. "You can't tell a thing about him if you do. Arthur'd straighten up and be polite at his own funeral. Just look in the crack there and you'll see if he ain't sick!"

Mrs. Motherwell did see Arthur as he lay tossing and moaning across his bed, his letter pad and pencil beside him on the floor. But she remained unmoved.

"Oh, I don't think he's so very bad," she said. "We'll get the doctor in the morning if he isn't any better. You go to bed, Pearl, and don't worry yourself."

But Pearl did not go to bed. When Mrs. Motherwell and Tom had gone to their rooms, she built up the kitchen fire and heated a frying pan full of salt, with which she filled a pair of her own stockings and brought them to Arthur. She remembered that her mother had done that when her father was sick, and that it had eased his pain. She drew a pail of fresh water from the well and brought a basinful to him and bathed his burning face and hands. Arthur received her attentions gratefully.

Then Pearl decided what she would do. She would run over and tell Jim, and Jim would go for the doctor. Jim would not be in bed yet, she knew, and even if he were he would not mind getting up. Pearl was just going out of the kitchen with her hat and coat on when Mrs. Motherwell came in. She had been unable to sleep.

"Where are you going, Pearl," she asked.

"To git someone to go for the doctor," Pearl answered stoutly.

"Is he worse?" Mrs. Motherwell asked.

"He can't git worse," Pearl replied grimly. "If he gits worse he'll be dead."

Mrs. Motherwell called Tom at once, and told Tom to bring the doctor as soon as he could. "And hurry, Tom. Bring Doctor Barner. I think he's the best for a serious case. Doctor Clay is too young. Anyway, the old man knows far more than he does if you can only get him sober."

Pearl's heart sank.

"Arthur's as good as dead," she whispered as she went to the granary, crying softly to herself. "Doctor Clay is the only man who could save him, and they won't have him."

Heavy clouds filled the sky. Not a star was to be seen, and the night was growing darker and darker.

A sound of wheels came from across the creek, coming rapidly down the road. The old dog barked furiously. A horse driven at full speed dashed by the house. Pearl ran shouting after, but even in the

darkness she recognized the one person in all the world who could save Arthur. But the wind drowned her voice, and the sound of the doctor's wheels grew faint in the distance.

Only for a moment was Pearl dismayed.

"I'll catch him comin' back," she said, "if I have to tie binding twine across the road to tangle up Pleurisy's long legs. He's on his way to Cowan's, I know. Ab Cowan has quinsy. Never mind, Thursa, we'll git him! I hope now the old doctor is too drunk to come. Oh, no, I don't, either; I just hope he's away, and Doctor Clay will have it done before he gits here."

The wind raged and howled with increasing violence as it came rushing across the Manitoban plain, and swept around the granary where Arthur lay tossing upon his hard bed. It seized the door and rattled it in wanton playfulness, as if to deceive the sick man with the hope that a friend's hand was on the latch, and then raced blustering and screaming down to the meadow below. The fanning mill and piles of grain bags made fantastic shadows on the wall in the lantern's dim light and seemed to his distorted fancy like dark and terrible specters waiting

dog with his head upon her knee perfectly still.

After a time Arthur opened his eyes and looked anxiously around him. Pearl was beside him at once.

"Pearl," he said, "what is wrong with me?" The strength had gone out of the man; he could no longer battle with the pain.

Pearl hesitated. It is not well to tell sick people your greatest fears. "Still Arthur is English, and the English are gritty," Pearl thought to herself.

"Arthur," she said, "I think you have appendicitis."

Arthur lay motionless for a few moments. He knew what that meant.

"But that requires an operation," he said at length; "a very skillful one."

"It does," Pearl replied, "and that's what you'll git as soon as Doctor Clay gits here, I'm thinkin'."

Arthur turned his face into the pillow. An operation for appendicitis, here in this place, and by that young man, no older than himself, perhaps. He knew at home it was only undertaken by the oldest and best surgeons in the hospitals.

Pearl saw something of his fears in his face, so she hastened to reassure him.

"Don't you be worried, Arthur, about it at all, at all," she said cheerfully. "Man alive, Doctor Clay thinks no more of an operation like that than I would o' cuttin' my nails!"

A strange feeling began at Arthur's heart and spread up to his brain. It had come! It was here! "From lightning and tempest; from plague, pestilence and famine; from battle and murder and sudden death, good Lord, deliver us!"

He had prayed it many times, meaninglessly. But he clung to it now—clung to it desperately, like a drowning man. He put his hands over his eyes; his pain was forgotten. "Other lights are paling, which for long years we have rejoiced to see. We would not mourn them, for we go to Thee!"

Yes, it was all right. He was ready now. He had come of a race of men who feared not death in whatsoever form it came. "Bring us to our resting place at night, weary and content and undishonored, and grant us in the end the gift of sleep." He repeated the prayer to himself slowly. That was it, weary and content and undishonored.

"Pearl," he said, reaching out his hand until it rested on hers, "all my letters are there in that black portmanteau, and the key is in my pocketbook. I have a fancy that I would like no eye but yours to see them—until I am quite well again."

She nodded.

"And if—you should have need to write to—Thursa, tell her that I had loving hands about me—at last."

Pearl gently stroked his hand.

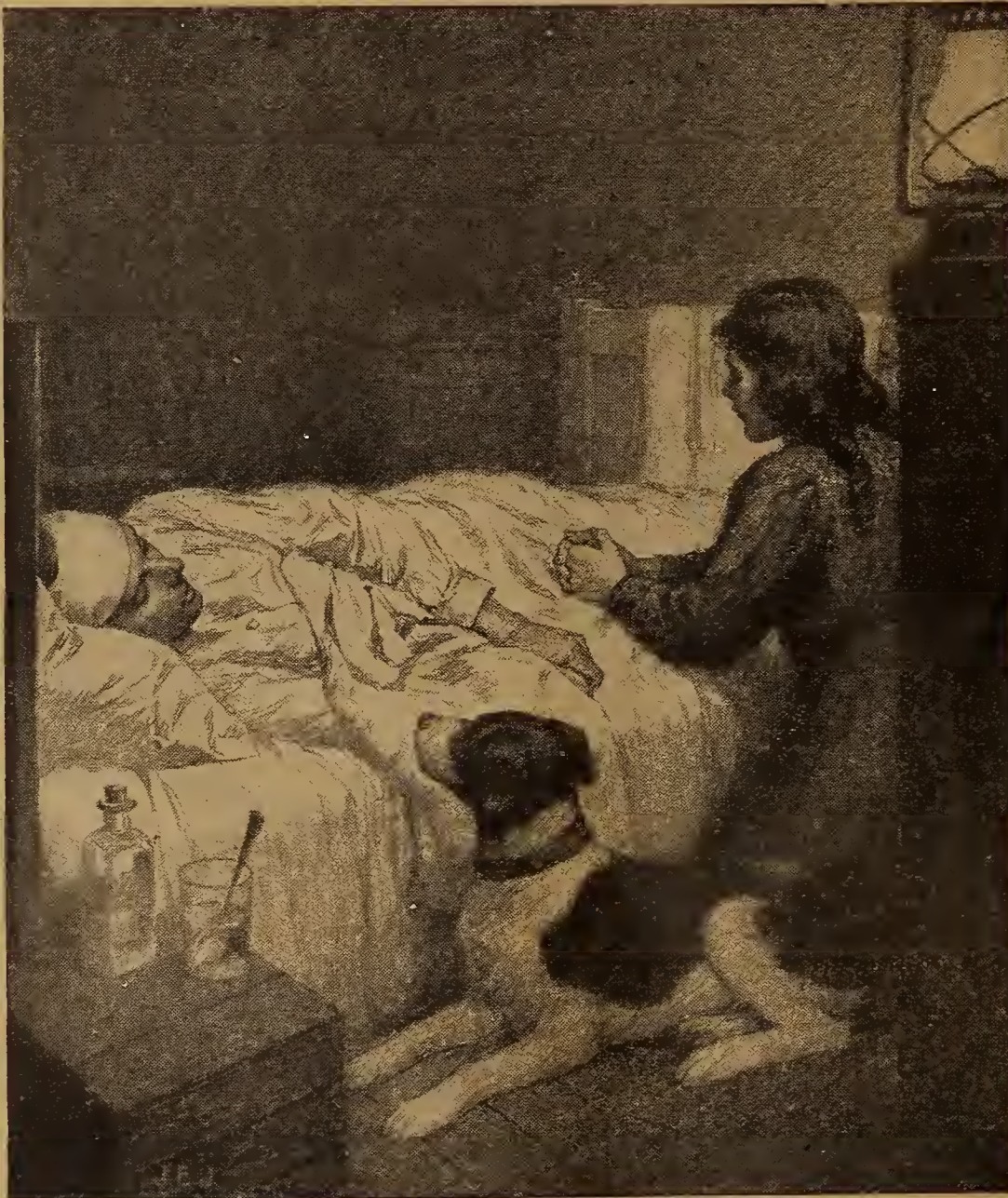
"And to my father write that I knew no fear"—his voice grew steadier—"and passed out of life glad to have been a brave man's son and borne, even for a few years, a godly father's name."

"I will write it, Arthur," she said.

"And to my mother—" his voice wavered and broke—"my mother—for I was her youngest child—tell her she was my last tenderest thought."

Pearl pressed his hand tenderly against her weather-beaten little cheek, for it was Danny now—grown a man, but Danny still—who lay before her fighting for his life, and at the thought her tears fell fast.

"Pearl," he said again, after a pause, pressing his hand to his forehead, "while my mind holds clear, perhaps you would be good enough, you have been so good to me, to say that prayer you learned. My father will be in his study now, and soon it will be time for morning prayer. I often feel his blessing on me, Pearl. I want to feel it now, bringing peace and rest . . . weary and content and undishonored and . . . undishonored . . . and grant us . . ." His voice grew fainter and trailed away into incoherency. And now, O thou dignified rector of St. Agnes, in thy home beyond the sea, lay aside the "Appendix to the Apology of St. Perpetua," over which thou porest, for under all thy dignity and formalism there beats a loving father's heart. The shadows are gathering, dear sir, around thy fifth son in a far country, and in the gathering shadows there stalks, noiselessly, relentlessly, that grim, gray specter, Death. On thy knees, then, O rector of St. Agnes, and blend thy prayers with the feeble petitions of her who even now



"Bring us to our resting place at night, weary and content and undishonored." He repeated the prayer slowly

to spring upon him. His fever mounted every hour. Pearl knelt beside him, tenderly bathing his burning face.

"Why do you do all this for me, Pearl?" he asked slowly, his voice coming thick and painfully.

She changed the cloth on his head before replying.

"Oh, I keep thinking it might be Teddy or Jimmy, or mebbe wee Danny," she replied gently. "And besides there's Thursa."

The young man opened his eyes and smiled bravely.

"Yes, there's Thursa," he said simply.

Pearl kept fire burning in the kitchen—the doctor might need hot water. She had remembered that he needed sheets too, and carbolic acid, when he had operated on her father the winter before.

Arthur did not speak much as the night wore on, and Pearl began to grow drowsy in spite of all of her efforts. She brought the old dog into the granary with her for company. The wind rattled the mud chinking in the walls, and drove showers of dust and gravel against the little window. She had put the lantern behind the fanning mill so that its light would not shine in Arthur's eyes, and in the semi-darkness she and old Nap waited and listened, the

for thy house entreats the Throne of Grace. Pray, O thou on whom the bishop's hands have been laid, that the golden bowl be not broken, nor the silver cord be loosed, for the breath of thy fifth son draws heavily, and the things of time and sense are fading, fading, fading from his closing eyes.

Pearl repeated the prayer "... and grant, O most merciful Father, for His sake, that we may hereafter lead a godly, righteous, and sober life."

She stopped abruptly. The dog lifted his head and listened. Snatching up the lantern she was out of the door before the dog was on his feet. There were wheels coming—coming down the road in mad haste. Pearl swung the lantern and shouted. The doctor reined in his horse. She flashed the lantern into his face.

"Oh, Doc," she cried, "dear old Doc! I have been waitin' and waitin' for you. Git in there to the granary, Arthur's the sickest thing you ever saw. Git in there on the double jump!" She put the lantern into his hand as she spoke.

Hastily, unhitching the doctor's horse, she felt her way with him into the driving shed.

"Now, Thursa," she laughed to herself, "we've got him, and he'll do it, dear old Doc, he'll do it." The wind blew dust and gravel into her face as she ran.

When she went into the granary the doctor was sitting on the box by Arthur's bed with his face in his hands.

"Oh, Doc, what is it?" she cried, seizing his arm.

The doctor looked at her, dazed, and even Pearl uttered a cry of dismay when she saw his face, for it was like the face of a dead man.

"Pearl," he said slowly, "I have made a terrible mistake. I have killed young Cowan."

"Bet he deserved it, then," Pearl said stoutly.

"Killed him!" the doctor went on, not heeding her. "He died in my hands. Poor fellow, the poor young fellow! I lanced his throat, thinking it was quinsy he had, but it must have been diphtheria, for he died, Pearl—he died, I tell you!"

"Well," Pearl cried excitedly, "he ain't the first man that's been killed by mistake. I'll bet lots of doctors kill people by mistake, but they don't tell, and the corpse don't either, and there you are. I'll bet you feel worse about it than he does, Doc."

The doctor groaned.

"Come, Doc," she said, plucking his sleeve, "take a look at Arthur."

The doctor rose uncertainly and paced up and down the floor with his face in his hands, swaying like a drunken man.

"Oh, God," he moaned, "if I could but bring back his life with mine! But I can't, I can't."

Pearl watched him. Then she spoke. "Doc, I think Arthur has appendicitis. Come on and have a look at him and see if he hasn't."

WITH a supreme effort the doctor gained control of himself and made a hasty but thorough examination. "He has," he cried, "a well-developed case of it."

Pearl handed him his satchel.

"Here, then," she cried, "go at him."

"I can't do it, Pearl," he cried. "I can't, he'll die, I tell you, like that other poor fellow. I can't send another man to meet his God."

"Oh, he's ready for that," Pearl interrupted. "Don't hold back on Arthur's account."

"I can't do it," he repeated hopelessly. "I can't kill two men in one night."

Arthur's breath was becoming more and more labored. His eyes roved sightlessly around the room; his head rolled on the pillow in a vain search for rest; his fingers clutched convulsively at the bed clothes.

Pearl was filled with dismay. The foundations of her little world were tottering. All but one. There was One who had never failed her. He would not fail her now.

She dropped on her knees.

"O God, dear God," she prayed, beating her hard little brown hands together, "don't go back on us, dear God. Put the gimp into Doc again. He's not scared to do it, Lord; he's just lost his grip for a minute. He's not scared, Lord; it looks like it, but he isn't. You can bank on Doc, Lord, he's not scared. Bear with him, dear Lord, just a minute, just a minute—he'll do it, and he'll do it right. Amen."

[CONTINUED IN NEXT ISSUE]

The Blue Envelope

[CONTINUED FROM PAGE 32]

crucial moment. Slowly, while Mrs. Davis and Fischer both watched me closely, I opened my bag and took out the two envelopes, the white one addressed to the Chief of Ordnance, and the other—the blue envelope.

I held them out to Fischer without a word.

"That's sensible," he said. I think he was relieved that I had not screamed and defied him.

He took the envelopes over to the center table and opened them—the white one first, and he smiled as he read its contents, and when I saw that evil, contemptuous smile all my trembling left me. I was suddenly, coldly, dangerously angry. And I felt ready to cope with a dozen Fischers and Mrs. Davises.

He laid the white envelope on the table and then, very carefully, he opened the blue envelope and drew out the sheet of paper I had put in it. I almost laughed out loud at his face while he read it—those immortal words which concern the walrus' need of conversation. He did not crumple it in his hand and cry "Tricked!" as villains on the stage do, but he turned to me a black and threatening face.

"What does this mean?" he asked.

If I told him it was a fake—it ran through my head as swiftly as a flare of light—they might search me and find the real blue envelope. But if I said—why, or course, nothing easier,—

"It's in cipher, of course," I said, looking Fischer in the eye. "Mr. Kennedy thought it rather a clever one."

He stared at me for a long, tense minute, but I stared back as innocently as I could. Then he turned to Mrs. Davis.

"Look," he said, holding out the slip of paper with that silly rhyme on it to her. They bent over it together in the yellow lamplight. Mrs. Davis gave a long breath.

"THAT'S the outstanding limit!" she declared at last. "What is the stuff anyway? D'ju ever hear anything like it!" And she began laboriously to read: "The—time—has—come—the—walrus—said," in the same monotonous style that the small boy recites the reading lesson. "I can't make head nor tail of it," she wound up heavily. It was a great piece of luck that neither of them had ever read "Through the Looking Glass"—it made the verse seem so much more like a real cipher to them.

Fischer considered and, as he considered, he watched me narrowly, but he got no clue. I sat still and looked tired and dispirited, which required no effort. But my heart was beating so hard that I could feel it in my throat, and I waited with every nerve strung tight for what he might say and do. At last he turned away and looked at the verse again—turned the paper over, held it up to the light, and looked through it. At last he spoke.

"I'll get right back and turn it in," he said. "You know what you're to do. You'll probably get orders within a week."

Mrs. Davis surveyed him scornfully.

"Yes," she said. "I know what I'm to do and I don't require any information from you, Mr. Fischer. I was in this game before you was born, and I'll thank you to remember it. If you're going back you'd better hustle, that's all I've got to say. I can attend to my end of the business."

Fischer did not answer her, though it was plain that he did not relish her words. He took from an inner pocket a leather case, and in it he carefully placed both envelopes, the white one and the false blue one. He closed the case and put it back in his pocket, and without saying good-by to either of us he went out, closing the door behind him.

"I'm glad he's gone," said Mrs. Davis. "I never did like Fischer. Listen here, dearie, you're a real bright little girl, as I saw when you handed over the envelopes so cool. You know what your best interest is, and I respect you for it. I got my orders not to let you out of my sight until I'm told to put you on the train for New York and, that being said, you can see that you can make it a good bit easier for yourself if you just be friendly and peaceable and don't try to get away. I'll tell you, too, this place is thirty miles away from any living soul. Now, I'll be fair with you, if you'll be fair with me. I'm going to carry out my orders, of course, but that ain't any reason why we shouldn't be nice to each other. What say?"

It seemed best to meet her in an apparently frank and friendly spirit.

"Why, of course, Mrs. Davis," I said. "I give you my word that I won't give you any trouble. Of course you know that I want to get away as soon as I can, but since I've got to stay here until you get orders to let me go I might just as well make the best of it."

"Well now, dearie," said Mrs. Davis, patting me on the shoulder, "you have got sense. Let's get the folks in and see if they haven't got some supper for us."

I waited with eager curiosity to see who "the folks" might be who belonged in this isolated house and lent themselves to such questionable enterprises. Mrs. Davis went to the back door of the little parlor and flung it open.

[CONTINUED ON PAGE 37]

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The bitter taste often noticed in biscuits, cakes, muffins, corn bread, etc., does not exist in food made with pure cream of tartar baking powders like Royal or Dr. Price's.

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You Can Get One of These 5 Ponies Without Cost



This is
a Picture of
"Honey-Boy"

9		23	1
14	20		1
	16	15	14
25			

Solve This Puzzle Get 5,000 Votes

The figures in the squares above each represent a letter of the alphabet. A is 1, B is 2, C is 3, P is 16 and Y is 25, etc. Put the letters in place of the figures. Send me your solution to the puzzle at once with your name and address. I will then send you 5,000 FREE VOTES and tell you all about how to get one of the five ponies I am going to give away.

I Have Given Away Almost 200 Ponies

I never heard of any of the children to whom I have given ponies until they sent me their names and addresses just as I am now asking you to do. Surely you will want to do the same thing these other boys and girls have done—of course you want a pony and outfit all your own, then send me your name and address at once.

I am getting to be an old man, but there is nothing I like better than to make my boy and girl friends happy by giving them fine ponies and outfits. Just think of the pleasure I have in reading the letters I get from my happy pony-winners all over the United States, telling me of the good times they are having with the charming pets I gave them.

PICTURE NO. 1 shows Leonard Foreman of Pennsylvania who won "Bonny." Because Leonard was very prompt in writing me, he now owns this splendid pony. This proves that it pays to act quickly—don't put it off but answer this advertisement at once.

Away out in Kansas, Virginia Jameson lives. PICTURE NO. 2 shows Virginia with her cute little pony, "Daisy," that she won in my Pony Club. It's no wonder that little Virginia is so popular and envied so by her girl playmates, for "Daisy" is the only Shetland pony in her neighborhood.

Miss Irene Morton of North Carolina is shown in PICTURE NO. 3 with the pony and outfit I gave her. A short time ago I had a letter from her saying, "I have some mighty dandy times with my pony and I advise everyone who wants to win a pony to join Uncle Dave's Pony Club."

Vivia McNutt, PICTURE NO. 4, says: "The reason I won 'Teddy' was because I jumped in right at the start and lost no time in joining your Pony Club." It is needless to say she is very proud of her prize pet.

Although La Verne Fulton, Ohio, is a very small boy, that did not prevent him from being the winner of "Cupid," shown in PICTURE NO. 5. You have just as good a chance as did La Verne, if you will get busy at once and sign and mail the coupon to-day.

PICTURE NO. 6 shows Lena Purchell of New York and her pony, "Pete," that I gave her. She thinks that nothing could give a boy or girl more fun and pleasure than owning a pony. I often hear from Lena telling me of the good times she has with "Pete."

Think how proud you would be to have a pony all your own. As you go riding down Main Street at a merry clip, people would run to their front doors and say, "My! Isn't that the sweetest and most lovable pony you ever saw?" You will be the most popular girl or boy in your whole neighborhood, for it is very likely that you would have the only pony in your whole county.

Don't wait longer, thinking you have plenty of time, but send me your name and address at once with your solution to the puzzle. ACT QUICK—hurry in the coupon to me with your name and address. Do that at once and before long you will be the proud and happy winner of one of these five dandy ponies.

Write to
UNCLE DAVE
The Pony Man
Dept. A, Farm and Fireside
Springfield, Ohio

It is Easy to Get a Pony and Outfit From Me

THE first thing to do, if you want "Honey-Boy" or one of the other four ponies I am going to give away, is to send me your name and address on the coupon below together with your solution to the puzzle. For doing that I will give you 5,000 FREE VOTES which is a sure-winning start. I will answer your letter right away and send you a big collection of pictures showing many of the nearly 200 children who have already won fine ponies and outfits from me by joining my Pony Club.

It is easy to get a pony and outfit from me and, remember too, it will not cost you or your parents one cent. All I ask in exchange for one of these five pretty Shetland ponies is that you do a little easy work for me in your spare time. You will be surprised at how easy you can get a pony from me and you are sure to win if you show the right spirit and follow the easy directions I give you.

Every Boy or Girl Who Joins My Pony Club Wins a Prize

IN ADDITION to these five ponies and outfits, I will also give away many other fine prizes such as: Bicycles, Cameras, Watches, Guns, Bracelets, Rings, etc. In fact, I give handsome prizes to every member of my Pony Club. There is no possible way you can lose, and if you do what I tell you to, there's no reason why you can't win "Honey-Boy" or one of the four other cute ponies. No matter where you live, every boy or girl has the same good chance to win. The quicker you mail the coupon, with your solution to the puzzle, the better your chances will be to win one of these five beautiful ponies.

Write Me To-day—Quick Start Off With 5,000 Free Votes

My new Pony Club is just starting and you can be one of the very first to enter. On this page I show you only six of the many children to whom I have given ponies. I could not print the pictures of these children unless it was true that I gave away real, live ponies. This shows that I always carry out my promises and it also shows that you can do as well as these other children.

The most important thing for you to do right now is to send me your name and address on the coupon below together with your solution to the puzzle—that gives you 5,000 VOTES. Get out your scissors—sign, clip and mail the coupon at once. Then, in a short time, you may be the winner of one of these five dandy ponies.

Send Your Name and Address to
UNCLE DAVE, The Pony Man
Dept. A, FARM AND FIRESIDE, Springfield, O.

Sign and Mail This Coupon To-day

UNCLE DAVE, The Pony Man, Dept. A, FARM AND FIRESIDE, Springfield, O.

DEAR SIR: My answer to the puzzle is
Please credit me 5,000 FREE VOTES toward getting one of the five ponies you are going to give away. Tell me just how to become a member of your Pony Club. Write me at once for I am very anxious to join your club and to win one of the five ponies you are going to give away.

Name

St. or R. F. D. Box No

P. O. State



Children's Corner

Prince Grab

By Marjorie Grant

THERE was once a very spoiled and selfish prince who was so greedy that he would seize every last cake or lollipop before anyone else could get a bite. All the pages in the palace, all the nobles and courtiers, the cooks, the footmen, and the queen's maids disliked him heartily and called him Prince Grab.

The queen tried hard to get them to call him Prince Morgan Lucius Atabalvador Winkit Strom, but all to no avail. The only person in the whole world who really loved the prince was a little scullery maid with eyes as blue as forget-me-nots and hair as bright as the king's golden crown.

Once when she happened to be standing in Prince Grab's way, he had angrily thrown a silver marble at her, but so great was the goodness of her own heart that she thought he was giving it to her in kindness. She loved him with all the strength of her loyal soul, and called him Prince Give. The royal locksmith good-naturedly put a tiny silver ring on the silver marble, and through this Natalie, for that was her name, strung a leathern thong so that she could always wear it around her neck like a necklace.

One day when the prince and several of his companions were walking, they were stopped by a bent old man wearing a funny tight red cap and a ragged gray cloak. "Buy a cake!" he cried. He had but one cake in a willow basket, but that was the most luscious, tempting thing you ever saw!

Of course the prince wanted it. His companions hoped for just a taste, but he gobbled up the whole thing in about three bites. The bent old man in the ragged gray cloak went off shaking his head and muttering something that sounded like "A thousand-pound pig! A thousand-pound pig!" And then a queer thing happened.

The prince's cheeks began to puff up like balloons, and he had an uncomfortable feeling that his skin was too tight—which is a very uncomfortable feeling, you may be sure. The people all stared in amazement, for the prince was rapidly getting fatter and fatter. The prince tried to hide himself from their scornful eyes, but he was so fat he could hardly waddle, and the people followed him laughing and jeering. When he came to the palace, he found that there wasn't a door big enough for him to enter, and of course there wasn't a chair or bed big enough for him in the world. He could not ride his horse, and his favorite dog growled at him.

He weighed himself on a huge scales in the king's stables, and found that he came to exactly one thousand pounds. Then he understood what the cake seller meant by muttering "A thousand-pound pig!"

ASHAMED and sad he wandered around the royal garden, wondering what he could do and where he should go. All at once he came upon Natalie, the little scullery maid with eyes as blue as forget-me-nots and hair as bright as the king's golden crown. She was sitting under a tree and weeping bitterly. The prince hated to hear people cry, and he was starting away impatiently when he thought of what the ragged cake seller had muttered: "A thousand-pound pig!"

Going back he put his hand on Natalie's golden head.

"What is the matter?" he asked as gently as he could.

"I have lost the silver marble which the good prince gave me," sobbed Natalie without looking up, "and he has eaten an enchanted cake which the wicked elves made. I shall never be happy again until I have back my silver marble and the prince is beautiful again."

Then the prince was very much ashamed.

"All the king's servants shall search for the silver marble," he said, "but the prince deserved the punishment of the elves."

"No, no," cried Natalie. And when she saw who was speaking to her, she said: "I shall knock at every door until I find the cake seller and beg him to change you back again."

Quickly she dried her eyes and ran off to knock at every door and ask for the cake seller. At the very last house

she found him. He had just come in and was hanging up his ragged gray coat and his funny red cap on a peg in the wall of his tiny house. When he heard what she wanted he shook his head slowly.

But because her eyes were so blue and her hair so bright and her voice so tender, the cake seller's heart was softened and he said:

"For every kind deed the prince does he shall lose a pound until he is back at his proper weight. But for every selfish or greedy act he shall gain two."

Quickly Natalie ran and found the prince and told him what the cake seller had told her. So the prince worked hard to serve others, and every day at six o'clock he was weighed in the scales in the king's stables. At first he found it very hard, but practice made unselfishness easier. Sometimes he lost twenty pounds, sometimes only ten, sometimes only five, and once in a while he did not lose, but gained back a pound or two.

You can imagine how glad he was after fifty days when he was small enough to get in the palace doors, and then after another fifty he was just as he should be. The king and queen had a great feast to celebrate the event. At the prince's request they adopted little Natalie, the scullery maid, and she became a princess, and could play every day in the royal garden instead of working in the kitchen for the cook. The silver marble which the king's servants had found for her she always wore on a golden chain around her neck.

The prince by this time was so generous and so thoughtful of others that the people had completely forgotten that he used to be called Prince Grab. They couldn't remember such a mouthful as Morgan Lucius Atabalvador Winkit Strom, and so they called him one and all by the name little Natalie had given him—Prince Give.

New Puzzles

Puzzling Synonyms

Behead a musical instrument and leave a musical instrument.
Behead a margin and leave a margin.
Behead a vessel and leave a vessel.
Behead an animal and leave an animal.

Answers to Puzzles

Puzzles Printed Last Issue

Three Miners Journeyed

The three miners journeyed together for 18 days, when man No. 1 transferred to each of his partners 18 days' provisions and then returned to the starting point, subsisting on the 18 days' rations which he retained. His two companions proceeded 18 days farther, when man No. 2 transferred 18 days' provisions to his partner, retaining 36 days' provisions for his own return trip; then man No. 3 continued alone for 18 days. A total of 54 days out from the starting point. He then had 54 days' provisions left for the return trip. Thus the survivor was able to proceed 1,080 miles into the desert.

Farm, Home, and Field

By E. L. Vincent

PAINT dries in more slowly in cool weather, and good painters know that that is the reason late fall-work is more lasting than that done in hot weather.

A rubber ring seems a small thing, and yet it may stand between the housewife and success in canning fruit and vegetables. Get the best rings you can, and better not try to use old ones at any time.

One more man at threshing time may lighten the work of every hand in the barn. Better that way than to have to spend a week resting up, or be compelled to have the doctor.

How much better the garden looks all cleared of frames and stakes after the last stuff has been taken off. Store all such things away.

Spend an hour now and then at the schoolhouse in your district. Keep up the good old-fashioned way of visiting your school. It will help teacher and pupil.

The Blue Envelope

[CONTINUED FROM PAGE 35]

"Mrs. Kroll—Mrs. Kroll," she called, "how about some supper?"

There were sounds of someone hurrying about overhead, and then silence for a second, and then heavy footsteps, evidently on some remote back stairs. A door opened in the back and was banged to, and a moment later a tall young woman in a calico dress entered the door Mrs. Davis had flung open. She was not only young, she had a fresh wholesome face, and though she was awkward and dressed in the plainest country style, she was decidedly attractive.

"I heard you come in, Mis' Davis," she said, smiling, "but I calculated you'n the doctor'd want to kind of get your niece used to the place before she saw any strangers. This her?" She turned and looked at me with lively curiosity. "Ain't it turrible how such things gets hold of young people! Why, she looks as right as anybody!"

Mrs. Davis gave me a warning glance and Mrs. Kroll another.

"Sh!" she cautioned. "She's sharp—you mustn't say anything before her to let on she's different from anybody else. We're both pretty well tired out and hungry, Mrs. Kroll."

"Of course," said Mrs. Kroll. "You go right up-stairs an' lay off your things and wash up if you wanta, and I'll have supper on the table in three shakes. Doctor didn't stay?" She looked about questioningly.

"No, he had to go right on back," said Mrs. Davis. "We'll hurry."

"The lights is all lit," said Mrs. Kroll, while following us out into the hall, and still-eying me with uncontrollable eagerness.

Mrs. Davis and I went up-stairs, I somewhat mystified, but as soon as we heard our hostess' footsteps retreating Mrs. Davis whispered: "I told her you were a nut—not dangerous, you know; but just a little off. And she thinks Fischer is a doctor." She chuckled cheerfully. "Oh, my dearie, this has been some neat little piece of scheming, believe me!" [CONTINUED IN NEXT ISSUE]

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We give choice of four Guns (on 4 Easy Plans) for selling our New "Healers"—The Salve that Heals—at 25 cents a box. **WE TRUST YOU.** Order 6 boxes Magic Healing "Healers" today, we send promptly. Easy to sell because it is a necessity in every home. Send promptly, return money, choosing your GUN, according to some one of the four plans, as entitled, in our big list. 200 other Gifts or Big Cash Commission if you prefer. **EXTRA GIFT** if you order today! **WAVERLY SUPPLY CO., Box 223, Monongahela, Pa.**

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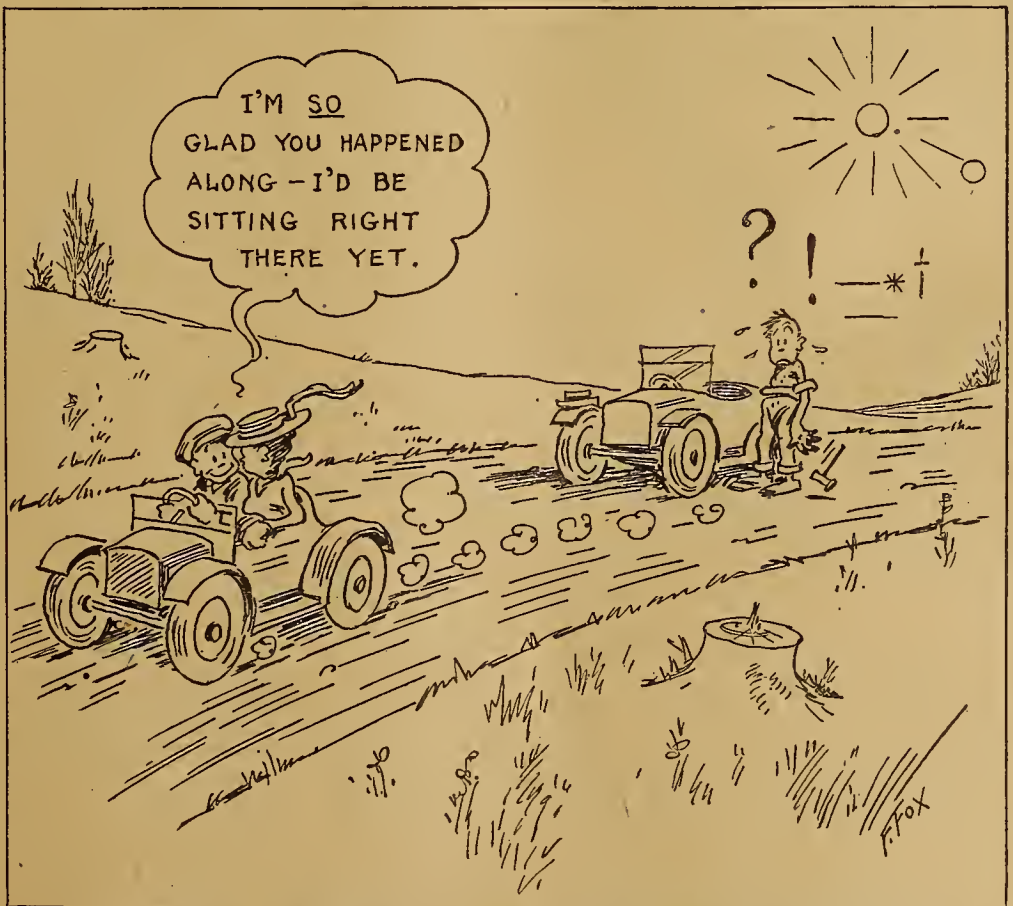
Shoe Brush, Polish Holder, Dauber, Polisher

A brilliant shine in two minutes. Quick and easy. No soiled hands or clothing. Pays for itself in a week. Everybody needs it. Sells in offices, shops and homes. Price within everybody's reach. Big profits. Easy to demonstrate. Brand new. Write quick for home territory. **Thomas Brush Co. 4146 Gay St. Dayton, O.**

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The biggest, fastest, snappiest sellers in the world. A big box of the finest Toilet Soaps, and give a pair of Patented Tension Shears free with each sale. Hundreds of other Big Snaps. Makes selling easy. Beginners cleaning up \$5 a day. Start while new. Outfit furnished free. Write today. **AMERICAN PRODUCTS CO., 7784 3rd St., CINCINNATI, O.**



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The best emollient yet discovered for burns, sores, cuts and skin troubles of all sorts.

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The Wonder of the World Rose Bushes with roses on them in 8 weeks from the time the seed was planted. It may not seem possible but we **Guarantee** it to be so. They will **BLOOM EVERY TEN WEEKS**, Winter or Summer, and when 3 years old will have 5 or 6 hundred roses on each bush. **Will grow** in the house in the winter as well as in the ground in summer. **Roses All The Year Around.** Package of seed with our guarantee, by mail, **Only Ten Cents.** **Japan Seed Co., Box 641, South Norwalk, Conn.**

"Wear-Ever"

Seamless Aluminum Bread Pans

HOME MADE BREAD

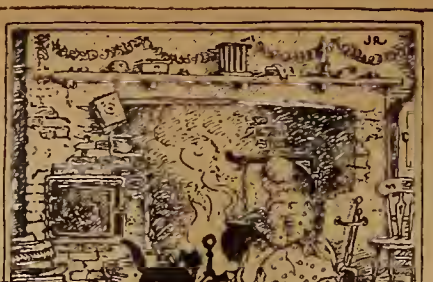
is better, more nutritious than any you can buy—and less expensive. Try this easy recipe, using "Wear-Ever" Bread Pans:

Recipe In 1 quart of water dissolve 2 cakes compressed yeast, 2 tablespoons salt and 2 of sugar. Stir in sifted flour (about 3 qts.) until a stiff dough is formed. Add 2 tablespoons lard and knead dough, adding a little flour from time to time, until smooth and elastic. Cover and set in a warm place for two hours or until light. Form dough into loaves, place in "Wear-Ever" Bread Pans and let rise again until light. Brush lightly with milk and place in oven.

"Wear-Ever" Aluminum Bread Pans take the heat quickly and hold it. Your bread will be baked evenly and thoroughly all the way through—delicious, crusty, whole loaves that the entire family will enjoy.

Only 30c The Aluminum Cooking Utensil Co. New Kensington, Dept. 57, Pa. or if you live in Canada Northern Aluminum Co., Ltd., Toronto, Ont. Send prepaid, 1 qt. "Wear-Ever" Stew Pan. Enclosed is 30c. in stamps or coin—money to be refunded if not satisfied. Offer good until April 20, 1917.

Name _____ Address _____



Housewife's Club

Labor Savers

By Jane Macpherson

THE housewife, especially on the farm where there is so much work to be done, needs the labor-saving, money-saving, and time-saving devices more than anyone else. Everywhere, in factories, department stores, and offices, these devices are coming into use. Yet few housewives have adopted these savers, and why?

Perhaps it is because they are still so new, or they are not thought practicable, or they may seem too expensive. The majority of these labor and time saving devices are new; there are some, perhaps, which have not yet been made practicable for everyday use; but the expense will usually be justified by the amount of time, money, and labor saved.

One of the very successful time and labor savers is the cake mixer. By using this very simple device a cake may be mixed and be ready for the oven in four or five minutes, whereas it is seldom possible to mix one in less than twenty or thirty minutes with a bowl and spoon. All of the ingredients are put in at once in the cake mixer, while with the old method each ingredient is added separately. The cost of these cake mixers ranges from \$2 to \$4, depending on the size. Thus in the mixing of a very few cakes you can save enough in time and labor more than to pay for the mixer.

Then there is the bread mixer, which has been on the market for a great many years, the mayonnaise mixer, which has proved very successful, the cream whipper, and many others.

A great fuel or money saver is the steamer. This is a large oven-like device which has a pan for water attached below to generate the steam. The steamer proper contains four shelves, which make it possible to cook more than one thing at a time. For instance, one may cook brown bread, cereal, a vegetable, and a pudding over one burner in the same length of time that is usually required for one. Besides being a fuel and time saver, the food cooked in a steamer has a decidedly good flavor.

Tinting White Lace

By Monica Kelly

TO TINT white lace without moistening it, put the lace in a box of yellow ochre powder and shake it. If a very delicate tint is desired, shake it for only a short time, examining it every little while to see if it is the right color. When the tint is deep enough, brush it well to take out the powder and make the color uniform.

Tea, coffee, or dyes may be used to tint lace if you are willing to wet it. If the lace is wet, however, care should be taken to stretch it in its proper shape until dry, so that the edges will not curl.

Quality in House Dresses

By Elizabeth Ayer

WORK dresses should be of good wearing quality, but not elaborate. Old clothes with ruffles and other trimming should not be worn in the kitchen. Dresses made from heavy materials absorb odors and grease, and are not appropriate for housework.

If a woman would look well in her home, and incidentally lessen her work at the washtub, she must wear the right

kind of house dresses. The first requirement for a good house dress is that it be made in one piece. This insures comfort and is easily put on. The house dress must open in the front or side front. Some find it convenient to have the dress button down to the bottom of the skirt. A dress made in this way is easily ironed and looks as well as those fastening with a placket. The house dresses worn in the kitchen should be made with short sleeves, a medium low neck, and a short skirt.

The material of the work dress must be of good wearing quality. If any trimming is used it must be of better material than the main part of the gown.

Crash toweling with a blue border wears well and makes attractive house dresses. It is inexpensive, and the border may be used as trimming for the collar, cuffs, etc. A few French knots in blue make a good finishing for the collar.

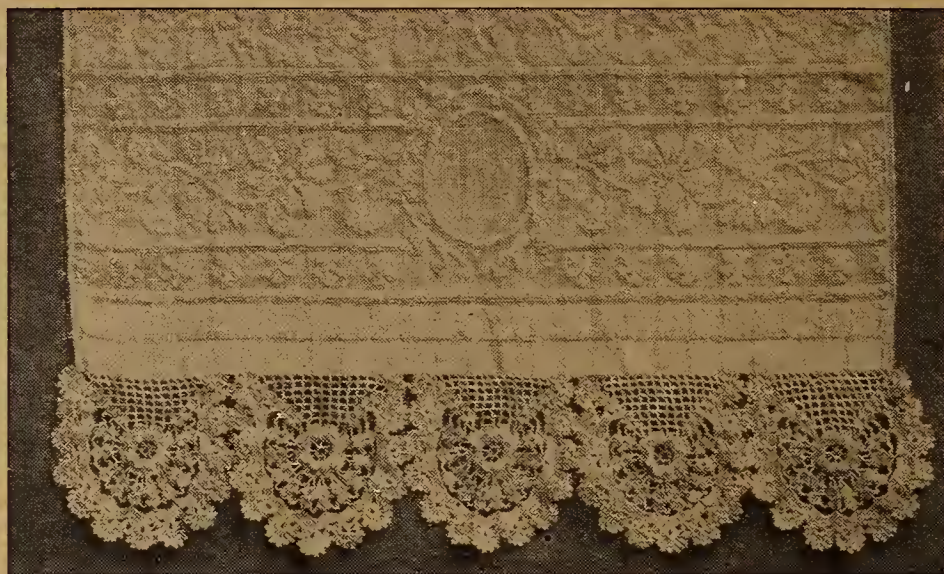
Blue and white checked toweling, linen and gingham, are also good for house dresses. Small cross-stitch designs are not out of place for trimming, and often give individuality to the dress. Cadet blue—a medium blue—is good if a color is desired.

Varying the Menu

By Mrs. Emily H. West

I WAS brought up on a farm where oatmeal and pancakes were served every morning for breakfast, and the potatoes were boiled every day for dinner except on Sunday, when they were mashed. We had white bread three times a day, with rare exceptions. Leftovers were simply warmed up and

Rose-Wheel Lace



THE deep lace which edges this handsome towel would be equally effective for centerpieces, piano and table scarfs, and for many other purposes. Send four cents in stamps to the Fancy-Work Editor, Farm and Fireside, Springfield, Ohio, for complete directions for making.

served. No effort was made to make them more palatable or tempting. Perhaps this is why in my own home I give special attention to variety in the daily menus.

Some people in their zeal for using up left-overs spend more time and energy in changing their form than the original article was worth. But in general the time or new material expended in using up left-overs is entirely justified. One who has a timbale iron can make the attractive shells or cases of fried batter which make the left-over creamed chicken so tempting. Salmon and peas or creamed asparagus are also good served in these shells. Meat left-overs may be made into croquettes or creamed and served on toast.

Casserole cookery affords a way for varying the cooking of chicken and meats. Rice with onions, peas, and carrots, combined with chicken, make a delicious dish, and each food separately develops a wholly unexpected flavor. Veal, lamb, and beef are also appetizing cooked with vegetables in a casserole.

Salads afford infinite variety, but many farm women neglect them entirely in winter. Gelatin salads are particularly attractive, easy to prepare, and nourishing. Several stalks of celery with the hollows filled with creamed cheese make a pleasing dish. Canned fruits, oranges, apples, and grapefruit make good sweet salads served either as a regular salad course or as a light dessert. Of course, canned beans, tomatoes, and asparagus are on the shelves of nearly every farm pantry and help to give variety when made into salads.

A light dessert should follow rich or heavy courses. Fruit or gelatin desserts are generally more attractive to the eye and more digestible than pies or rich puddings. Pretty molds make gelatin desserts novel and tempting.

Cooking Dried Fruit

By Cecelia Sharp

WHEN the supply of canned fruit is getting low, the housekeeper begins to think of dried fruit to tide her over until the season of fresh fruit. Proper preparation of dried fruit means first giving back as much as possible of the water which has been taken away by evaporation.

I have found that long soaking is the secret of success. After picking over my fruit and soaking it for half an hour, I wash it thoroughly to remove all dust and grit. Again I cover it with cold water and let it soak overnight or longer, and then cook slowly—just letting it simmer—until it is tender. When nearly done I add the sugar.

To make a good dried-apple pie, soak and stew the apples until they are tender as described. Put them through a sieve and add sugar, a little orange rind, cinnamon, and butter to flavor. Fill the crust and bake. Serve warm with cream.

COCOANUT PIE—In making pie crust, use only the best of lard and pastry flour. If possible, roll on marble slab, and always use very cold water to moisten it. For one pie of two crusts, use six tablespoonfuls of sifted flour, two tablespoonfuls of lard, one-half teaspoonful of salt, enough water to make it hold together. It should be damp, but never wet, as that makes it tough. For the cocoanut filling, to one pint of scalded milk add one cupful of shredded cocoanut. Let it stand for ten minutes before using. Add one-half cupful of sugar, the yolks of three eggs,

one-half teaspoonful of salt, and a little vanilla or nutmeg for flavoring. First line a pie dish with crust, prick in several places, and bake in a hot oven, then fill the crust with the cocoanut mixture, and spread with meringue made from the whites of the eggs beaten to a stiff froth with two tablespoonfuls of sugar. Sprinkle with cocoanut and set in the oven and brown slightly. **C. O. B., Missouri.**

FIG TAPIOCA PUDDING—Three tablespoonfuls of tapioca, two cupfuls of water, one teaspoonful of butter. Cook until clear. One-fourth box of figs or dates, chopped fine, one cupful

of water, one cupful of sugar. Cook until smooth and thick. Mix the two together and add one-half teaspoonful of vanilla. Serve cold with whipped cream on top. **F. L. D., Ohio.**

CORN BREAD—Two eggs, one-half cupful of sugar, one-fourth teaspoonful of salt, one pint of sour milk, one teaspoonful of soda, one pint of corn meal, one-fourth cupful of flour, one tablespoonful of melted butter. Beat together eggs, sugar, salt. Mix the soda in the sour milk and add to the mixture. Add corn meal, flour, and melted butter, and beat well. Bake for one-half hour. **J. M., North Dakota.**

PINEAPPLE WHIP—One-half box of gelatin, one can of grated pineapple, one cupful of sugar, one-half pint of cream. Soak gelatin in a little cold water. Mix pineapple and sugar together. Bring to a boil. Add gelatin, and let stand until it begins to get stiff. Then beat in the whipped cream. Serve very cold in glasses, with a little whipped cream on top, and a maraschino cherry to add color. **F. L. D., Kansas.**

RICE WITH PEAS—Chop two onions fine, and fry until brown in good fresh butter. Season with salt and pepper and add one cupful of cooked rice and canned peas. Serve hot. **P. N. E., Mississippi.**

MEAT LOAF WITH CHILI SAUCE—One pound of round steak, ground, one-half cupful of chili sauce, one-half cupful of English walnuts, salt, pepper, chopped parsley, and juice of one-half lemon; mix well. Put into buttered and floured pan. Add a little water. Baste with drawn butter (one tablespoonful of butter in one cupful of water). Bake forty-five minutes in a moderate oven.

Popular New York Fashions

for Spring and Summer



The above illustration shows how the collar of No. 3221 looks closed

No. 3221



No. 3037



No. 3036
No. 3037



No. 3226



No. 2935



No. 3217



No. 2823



No. 2823



No. 3223



No. 3225
No. 3190



No. 3225
No. 3190

A one-piece dress suitable for almost any occasion or fabric. No. 3221—One-Piece Dress with Large Adjustable Collar. 34 to 44 bust. Width of skirt, two and three-fourths yards. The price of this pattern is twenty cents

Suitable for sports, picnics, and other daytime events. No. 3036—Sport Blouse. 34 to 42 bust. Pattern, fourteen cents. No. 3037—Three-Piece Skirt with Suspender Underwaist. 24 to 32 waist. Width, three yards. The price of this pattern is fourteen cents

FOR outdoor play wear the children need simple clothes of tub materials which will stand frequent laundering and hard service.

No. 2935—Belted Rompers with Short Sleeves. 2, 4, and 6 years. Price of pattern, fourteen cents. A good many rompers are made these days of cotton poplin. No. 3217—Girl's Panel Dress with Side Belts. 4 to 10 years. Price of pattern, fourteen cents. This panel dress has the new crush collar. No. 2823—Child's One-Piece Dress with Yoke. 1, 2, 4, and 6 years. Pattern, fourteen cents. A simple, stylish dress for the very little girl

No. 3226—Tucked Waist. 34 to 44 bust. Price of pattern, fourteen cents

No. 3225—Coat with Novelty Collar. 36 to 42 bust. Price of pattern, fourteen cents

No. 3190—Panel Skirt with Side Yoke. 24 to 30 waist. Width, three and one-half yards. Price of pattern, fourteen cents

One of the new gathered straight hanging skirts suitable for all fabrics. No. 3223—Three-Piece Skirt with or without Band. 22 to 30 waist. Width, two and one-half yards. The price of pattern, fourteen cents

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A Watch that tells time in the dark

Robt. H. Ingersoll & Bro., pioneers in bringing out a good low-priced watch, also lead in bringing out a watch that will tell time in the dark as well as in the daylight. This is the Ingersoll "Radiolite" Watch.

Its hands and figures are thickly layered with a new substance containing genuine radium. This substance glows brightly in the dark and lasts for ten years or more.

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Nearly one-third of the 17000 Ingersolls sold each day are "Radiolites." Like all Ingersolls, they are accurate, strong and reliable. You're safe when you buy an Ingersoll.

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 <p>3-5 Actual Size</p> <p>"Radiolite"</p> <p>Shows time in the dark. Hands and figures layered with "Radiolite," containing genuine radium.</p>	 <p>3-5 Actual Size</p> <p>Waterbury "Radiolite"</p> <p>A man's glow dial watch, handsome, with jeweled works. In plain dial also.</p>	 <p>3-5 Actual Size</p> <p>Reliance</p> <p>A thin, 7-jewel watch. In snap case, dust-proof screw case, or in 10-year gold-filled case.</p>

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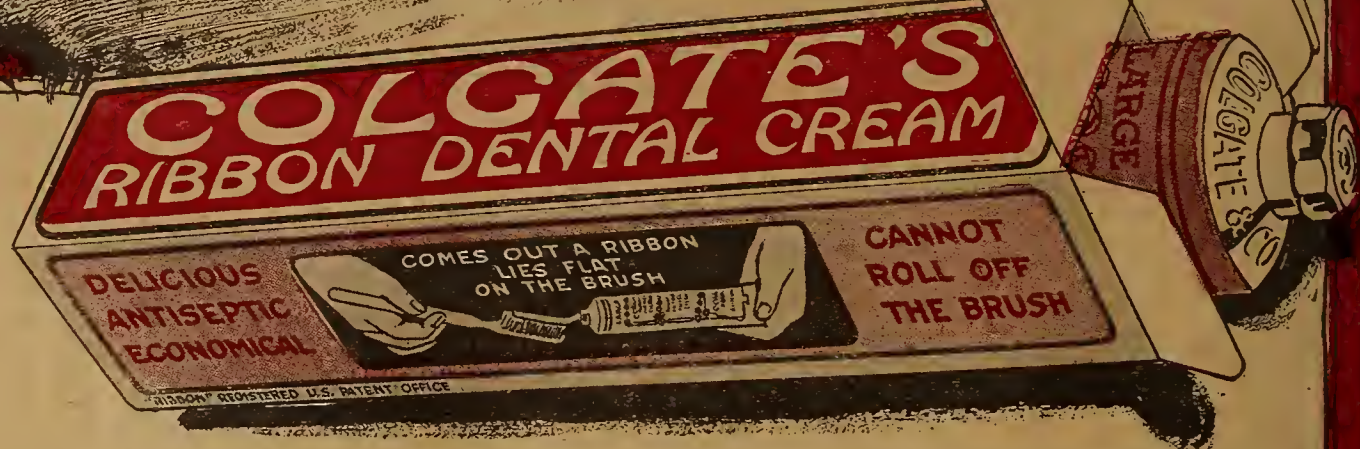
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You spray the trees to keep them healthy. You carry on a constant fight against weeds. You defend your crops from their insect enemies. You see that your barns and stables are sanitary. You give ceaseless care to your farm; and you do this because you know it is necessary to success, because a clean, healthy farm will bring you the greatest returns.



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Mr. Progressive Farmer, remember that your mouth and the mouths of your family are all somewhat like your farm. Your teeth are like your fruit trees, crops and live stock—you must be forever on the watch to keep them in good condition.

Science has proven that heart trouble and rheumatism frequently come from bad teeth; and *you know* they are the cause of half the stomach trouble of both old and young.

So you see, teeth have much to do with keeping everyone well and happy and ready to work, and you also must see that the teeth are well worth daily care and a visit to your dentist every six months. You can give them no better care than the twice-a-day brushing with Colgate's Ribbon Dental Cream.

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